



Office of Exploration Systems

Industry Day

18 June 2004



Agenda (Part 1 – Constellation CE & R)



- **0830-0835 Agenda Overview and Introduction**
Jim Nehman
Director, Development Programs
- **0835-0845 Welcome and Program Update**
Rear Admiral Craig E. Steidle (Ret.)
Associate Administrator, Office of Exploration Systems
- **0845-0900 Development Programs Overview and Acquisition Strategy**
Jim Nehman
Director, Development Programs
- **0900-0945 Concept Exploration & Refinement – RFI Results and BAA Final**
Captain Michael Hecker
Deputy, Development Programs
- **0945-1000 CE & R BAA – Contract Process**
Mark Stiles
Contracting Officer
- **1000-1030 Q & A Session – CE & R BAA – Jim Nehman Facilitator**
Captain Michael Hecker, Deputy, Development Programs
Garry Lyles, Deputy Director, Project Constellation
Captain Brent Jett, Deputy, Requirements Division
Mark Stiles, Contracting Officer
- **1030-1045 Break**



Agenda (Part 2 – Human & Robotic Technologies BAA)



- **1045-1050** **Introduction of H & RT Discussions**
Jim Nehman
Director, Development Programs
- **1050-1115** **Human & Robotic Technologies BAA & Acquisition Strategy**
John Mankins
Deputy Director, Human and Robotic Technologies
- **1115-1130** **H & RT BAA – Contract Process**
Mark Stiles
Contracting Officer
- **1130-1200** **Q & A Session – H & RT BAA – Jim Nehman Facilitator**
Captain Michael Hecker, Deputy, Development Programs
John Mankins, Deputy Director, Human and Robotic Technologies
Dr. Terry Allard, Program Director, Advanced Space Technology
Bret Drake, Requirements Formulation Lead
Mark Stiles, Contracting Officer
- **1200** **End of Industry Day**



Office of Exploration Systems Acquisition Portal



- **Additional Information Available at:**
<https://naccsli1.msfc.nasa.gov/ExplorationPortal>
- Updated Material Available
 - Today's Industry Day Briefing
 - Concept Exploration & Refinement Broad Agency Announcement
 - Constellation WBS
 - Human & Robotic Formulation Plan
 - President's Commission on Implementation of United States Space Exploration Policy



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Nation's Vision for Space Exploration



THE FUNDAMENTAL GOAL OF THIS VISION IS TO ADVANCE U.S. SCIENTIFIC, SECURITY, AND ECONOMIC INTEREST THROUGH A ROBUST SPACE EXPLORATION PROGRAM

A RENEWED SPIRIT OF DISCOVERY

*The President's Vision for
U.S. Space Exploration*



PRESIDENT GEORGE W. BUSH
JANUARY 2004

Implement a sustained and affordable human and robotic program to explore the solar system and beyond

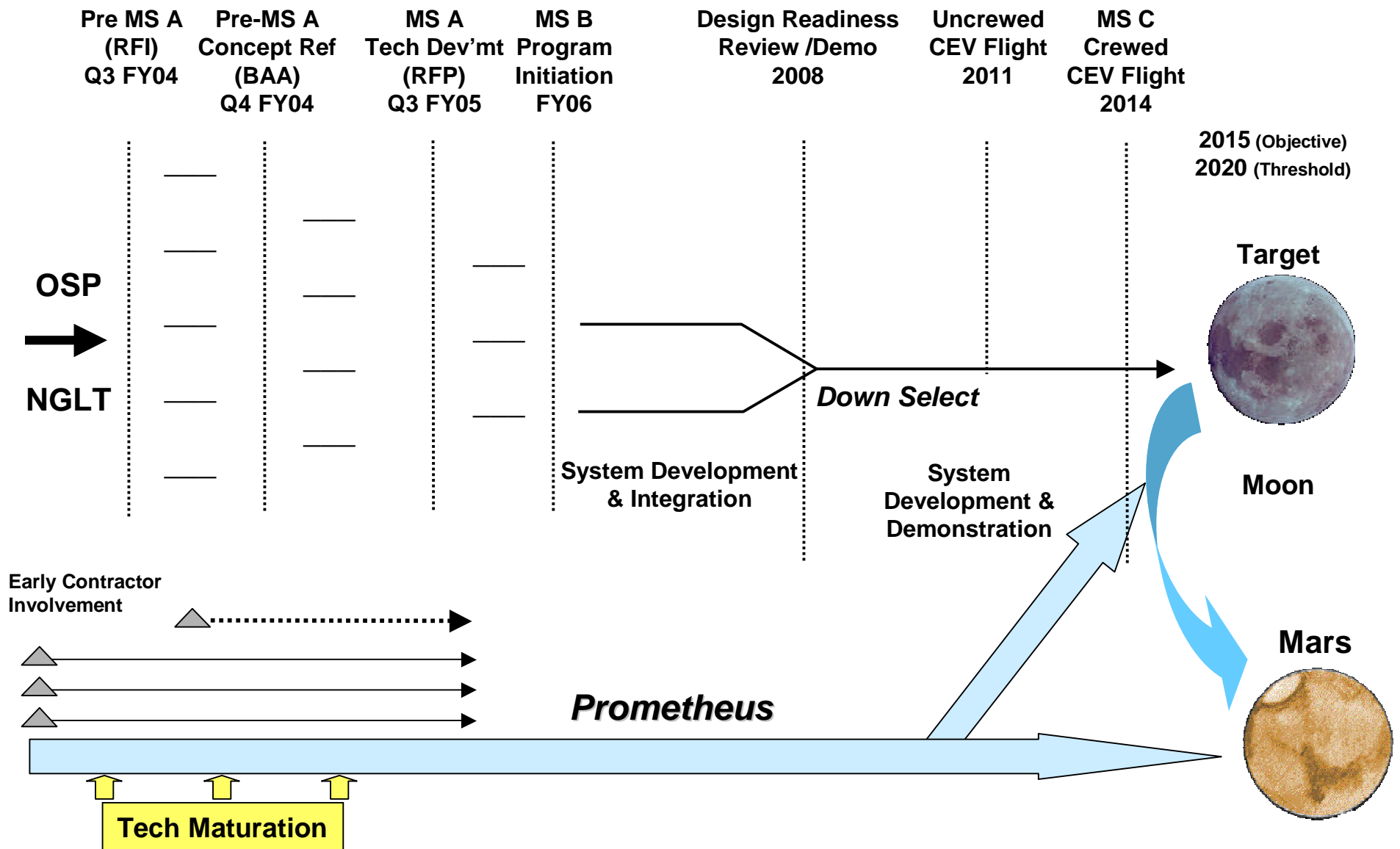
Extend human presence across the solar system, starting with a human return to the Moon by the year 2020, in preparation for human exploration of Mars and other destinations;

Develop the innovative technologies, knowledge, and infrastructures both to explore and to support decisions about the destinations for human exploration; and

Promote international and commercial participation in exploration to further U.S. scientific, security, and economic interests.

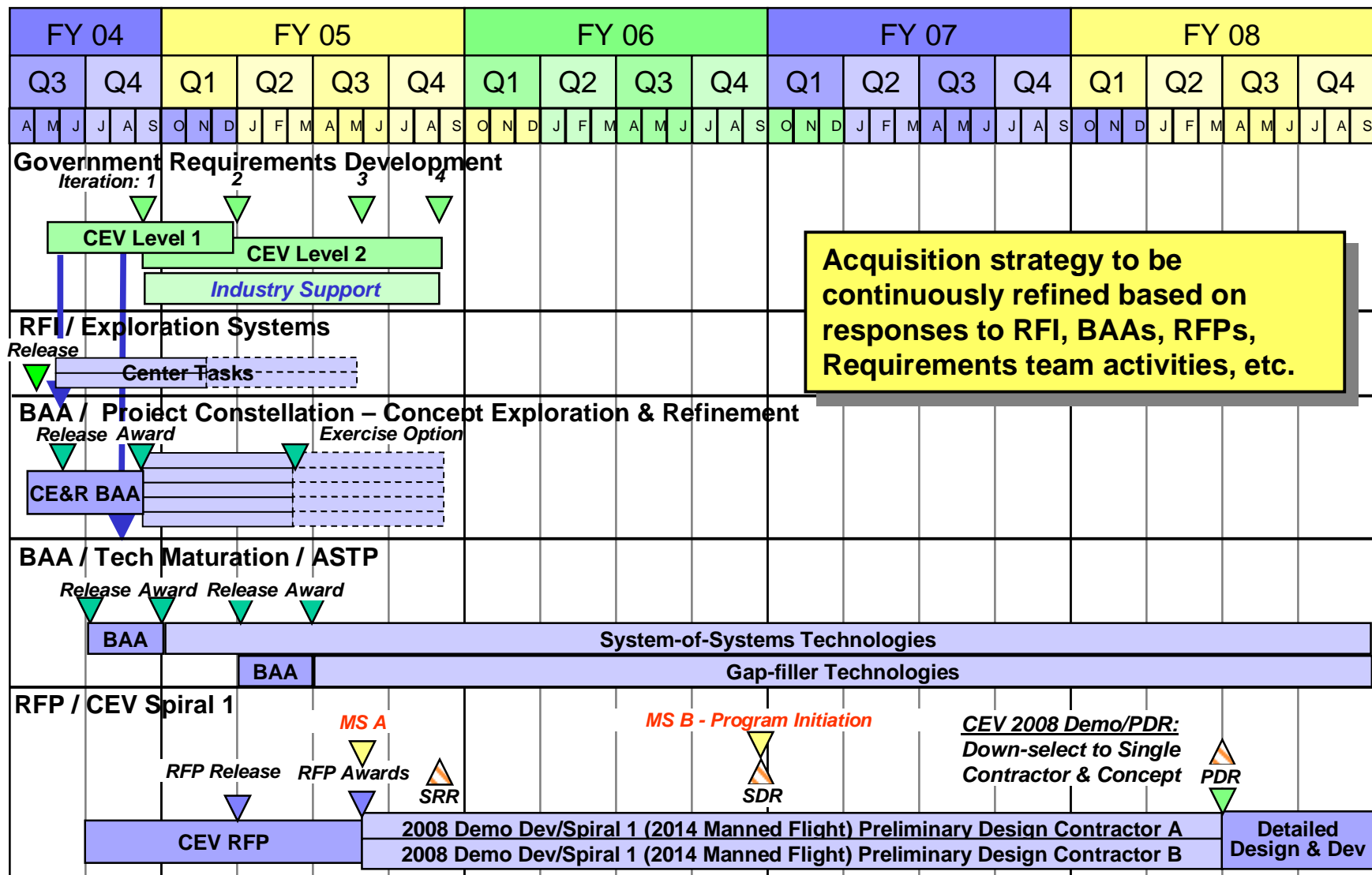


Project Constellation Program Acquisition Strategy Overview (Baseline)





Near-Term Acquisition Strategy





Issues We're Working



- **International Participation**
 - **NASA Seeking “Best Value to Government” Regardless of Source**
 - **Reviewing Policy for Foreign Cooperation**
 - **For Purposes of BAA, Existing NASA Policy Applies**
 - **Foreign Participation Encouraged**
 - **Cooperative, Non-exchange of Funds for Primes and Subcontractors Is Permitted**
 - **Direct Funding of Primes and Subcontractors Requires Case-by-case Approval From NASA**
- **Requirement for Certified Cost and Pricing Data**
 - **Pursuing a Waiver to Relieve the Burden of This Requirement on Proposers**
 - **Direct Response to Industry Concerns**



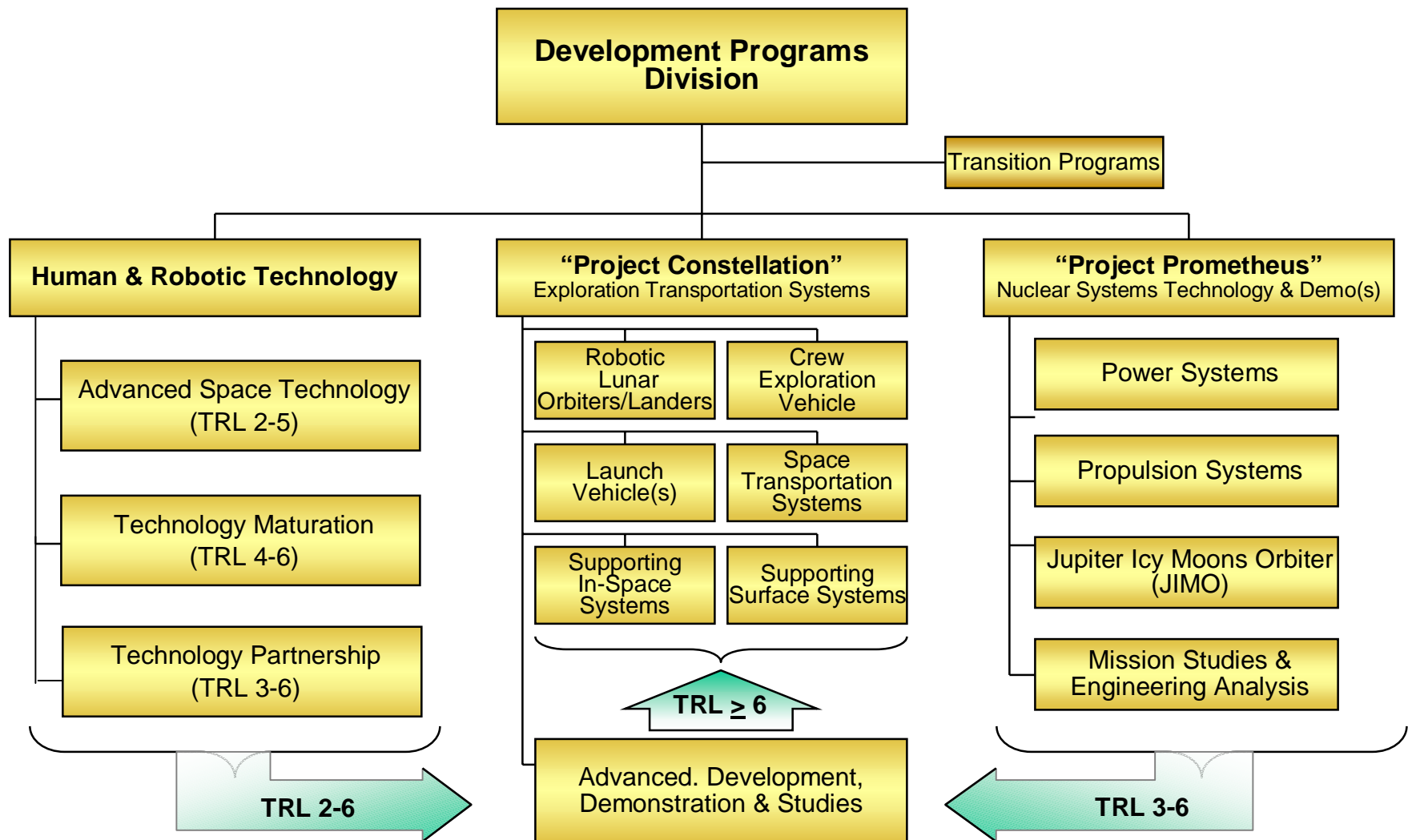
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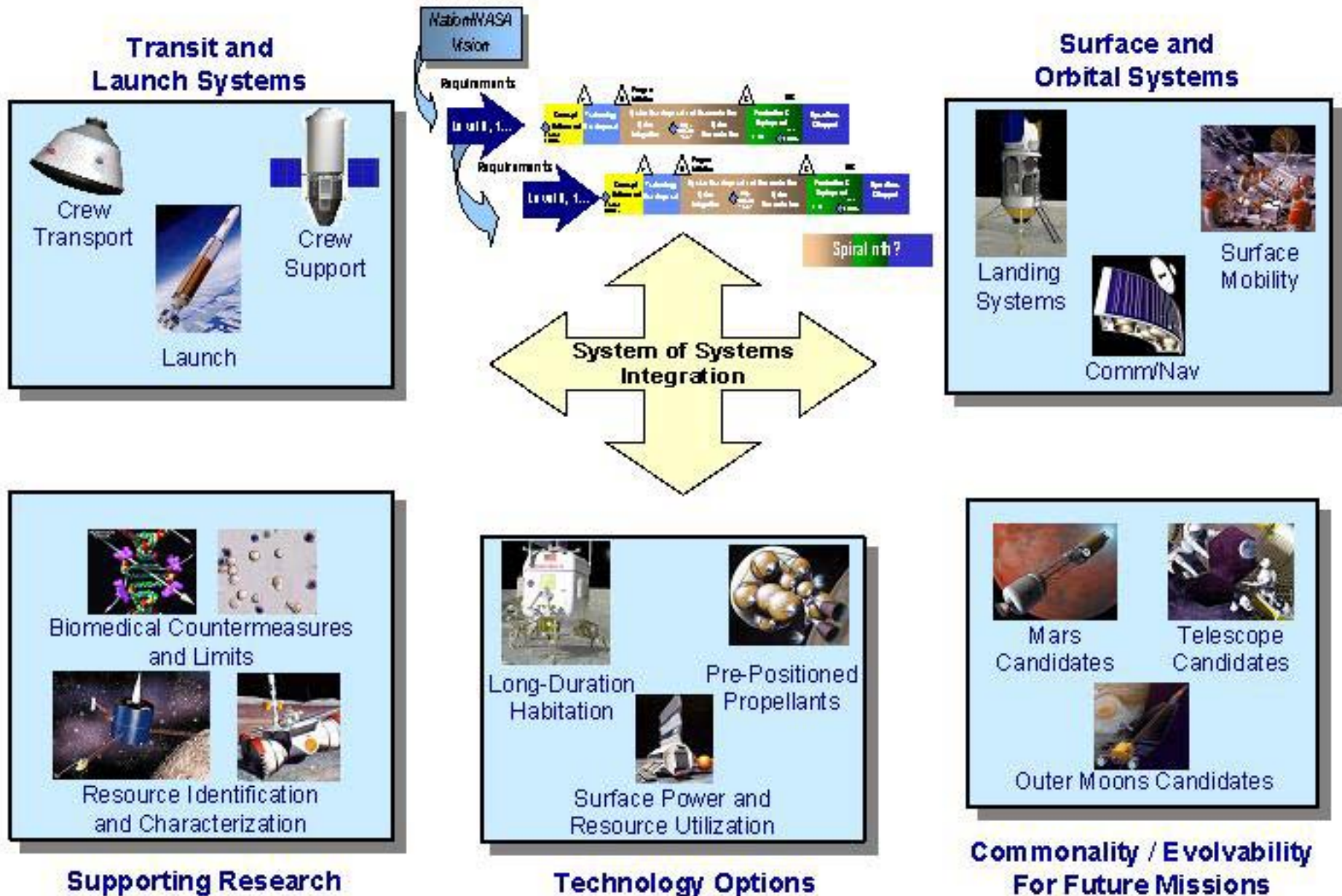
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Development Programs Division

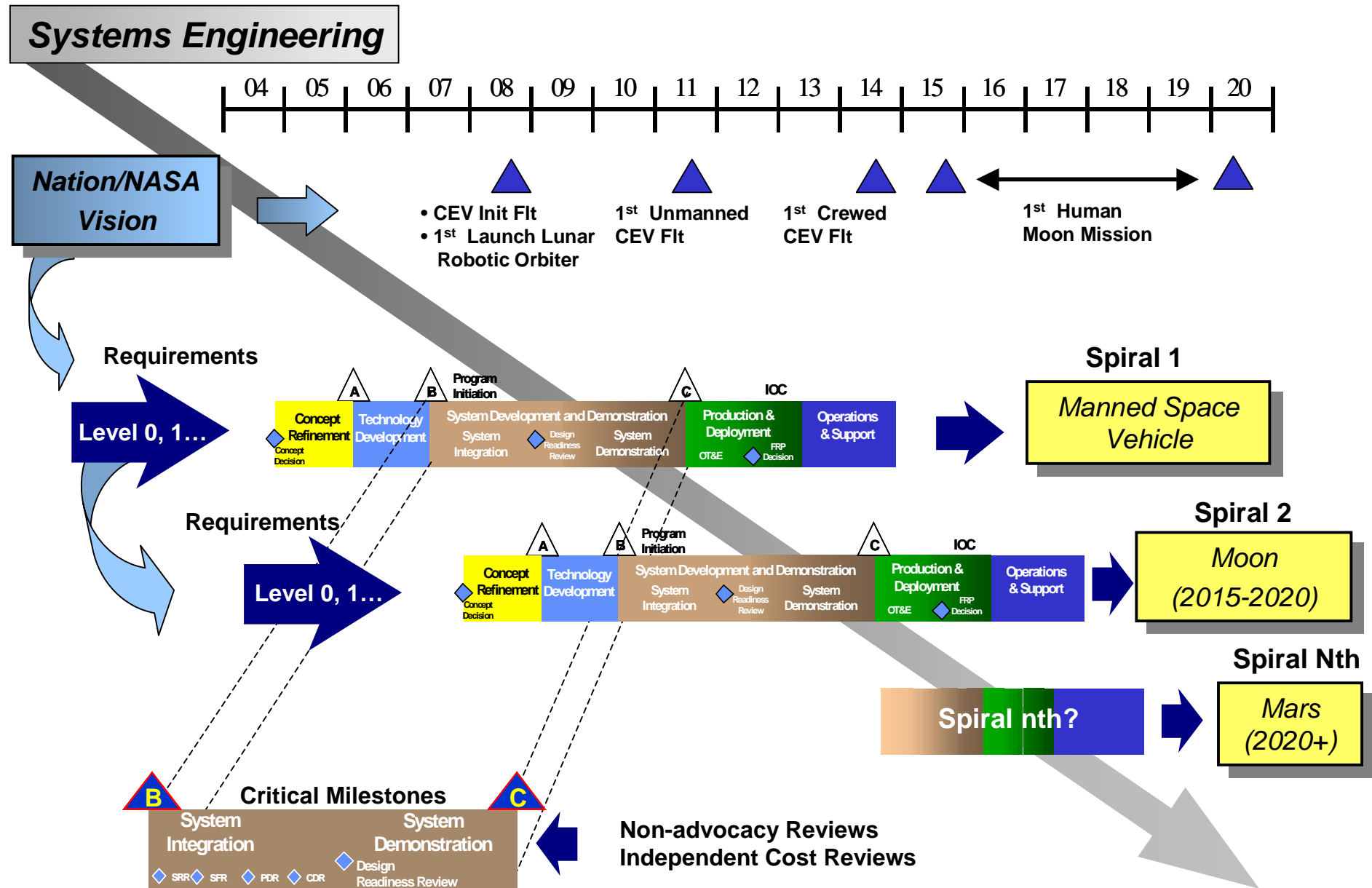


Cross-Agency, System of Systems Integration (Lunar Architecture – Illustrative Example Only)





Project Constellation Acquisition Spirals





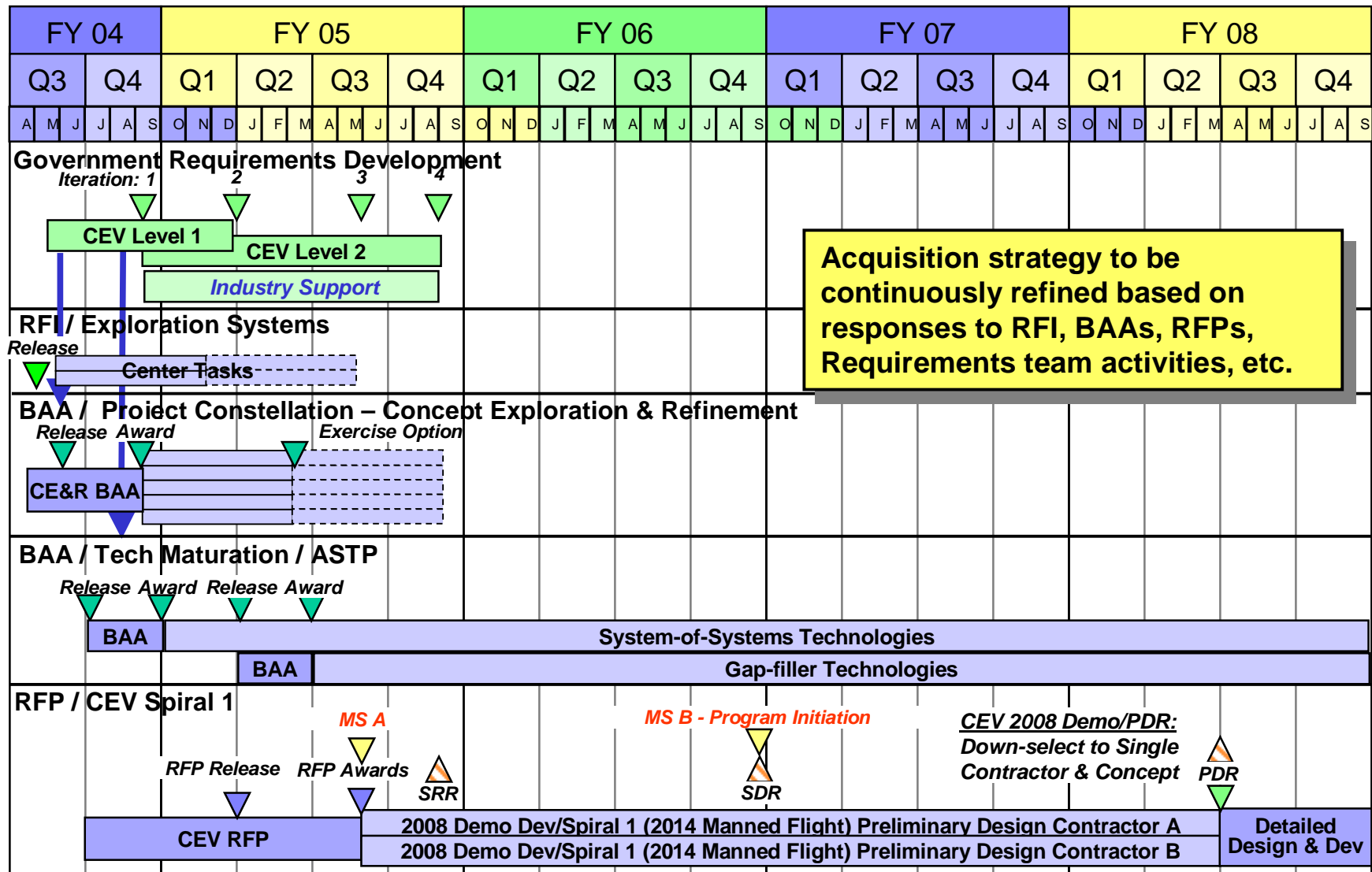
Development Programs Status



- **Project Constellation**
 - Request for Information (RFI) released to industry, government, academia
 - BAA for Concept Exploration & Refinement (CE&R) - discussed today
 - Preliminary concepts for human lunar exploration in 2015-2020
 - Initial CEV concepts
 - RFP for CEV Spiral 1 planned for Jan 2005
 - Determination of “System Integrator” strategy under study
- **Project Prometheus**
 - Jupiter Icy Moons Orbiter (JIMO) acquisition strategy realigned with exploration systems
 - Nuclear power/propulsion Level I requirements completed, Linked to Constellation
 - RFP for follow-on JIMO development to be awarded in Nov 2004
 - Competition between three prime contractors – continued competition being pursued
 - Secretary of Energy tasked Office of Naval Reactors (NR) to support Project Prometheus
- **Human & Robotic Technologies (H&RT)**
 - Advanced Space Technology Program (formerly Mission & Science Measurement (MSM))
 - Innovative Technology Transfer Program (including SBIR/STTR)
 - Technology Maturation Program (New in FY2005)
 - Intramural competition for technology projects underway
 - Industry BAA for H & RT System-of-System technologies - discussed today
 - Follow-on BAA for H & RT Gap-filling technologies planned for Jan 2005



Near-Term Acquisition Strategy



See Hand-Out: 6



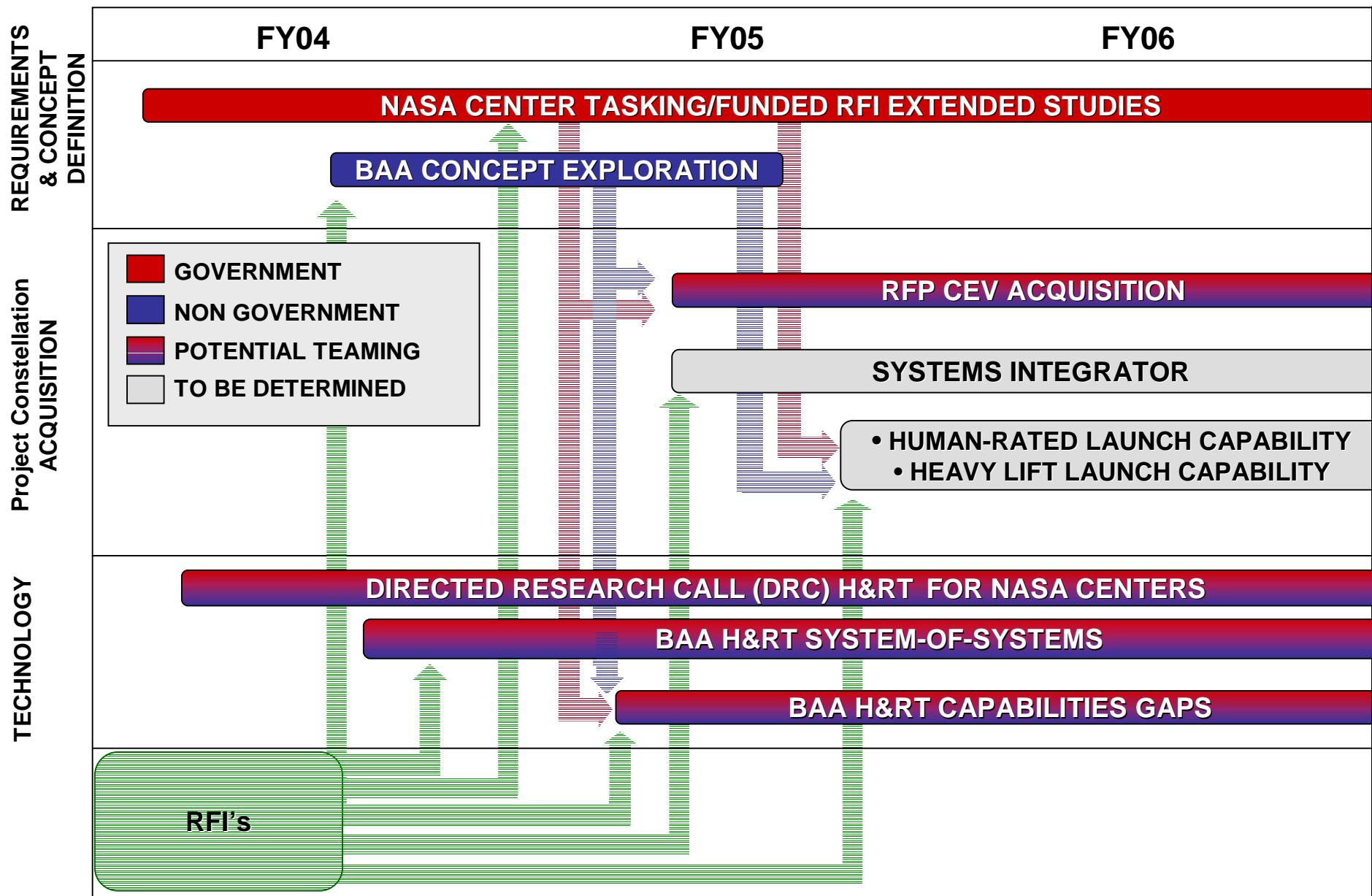
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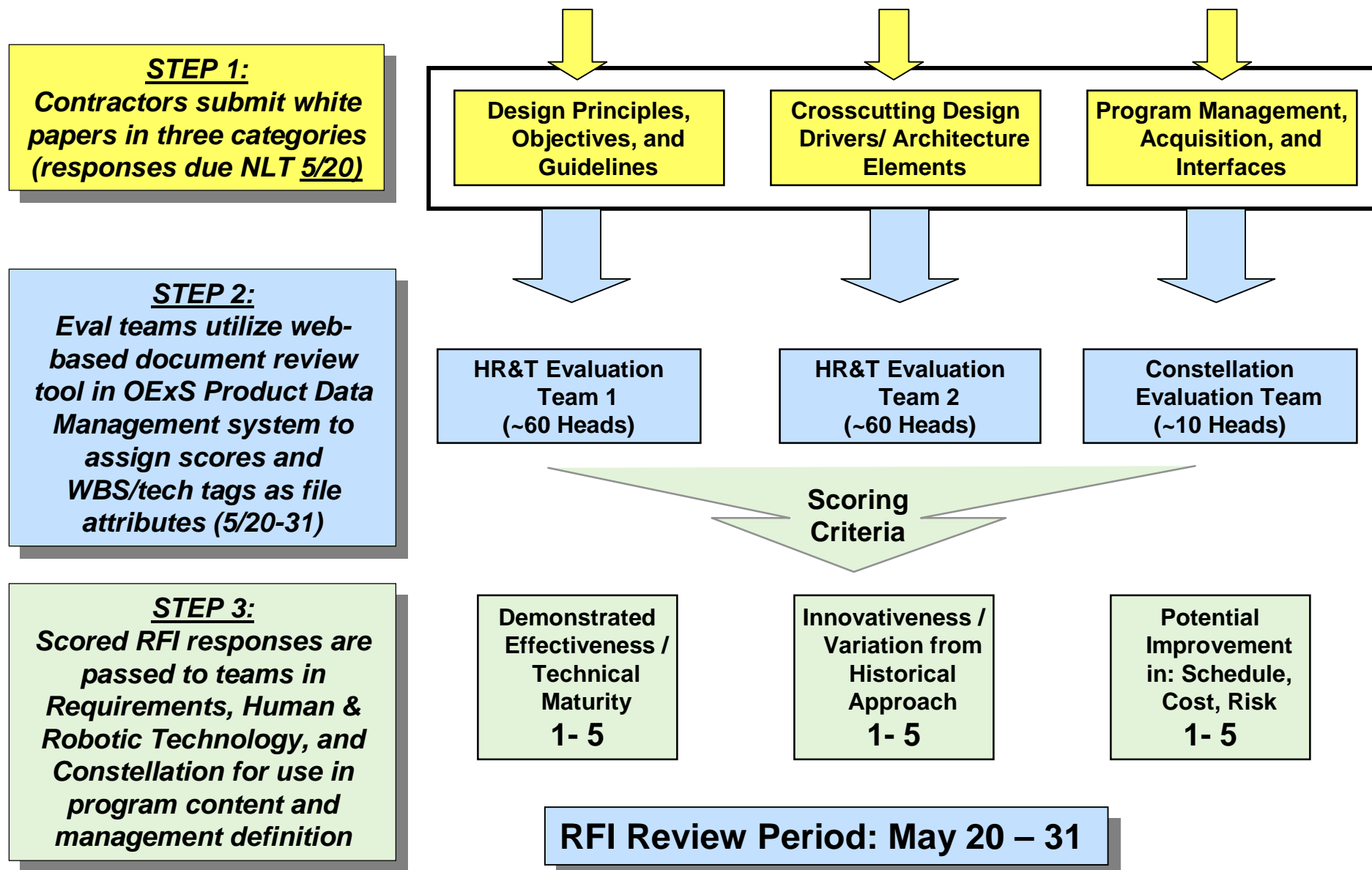


Flow of RFI Results into BAAs



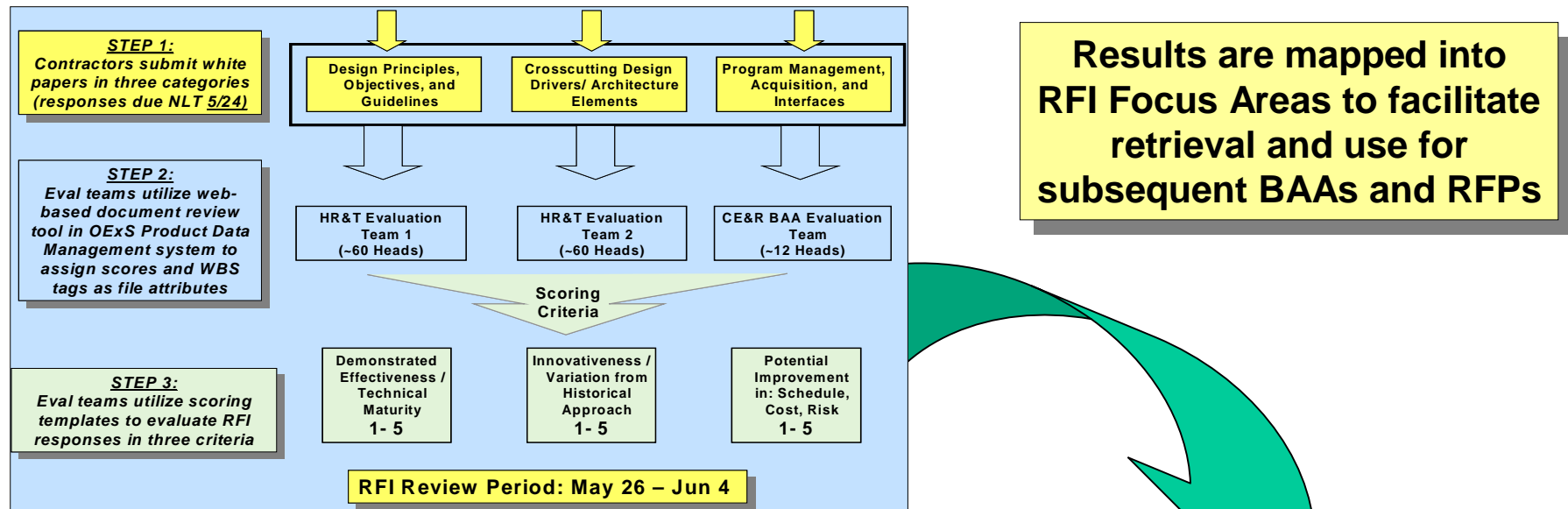


RFI Scoring Process





RFI Mapping to Focus Areas

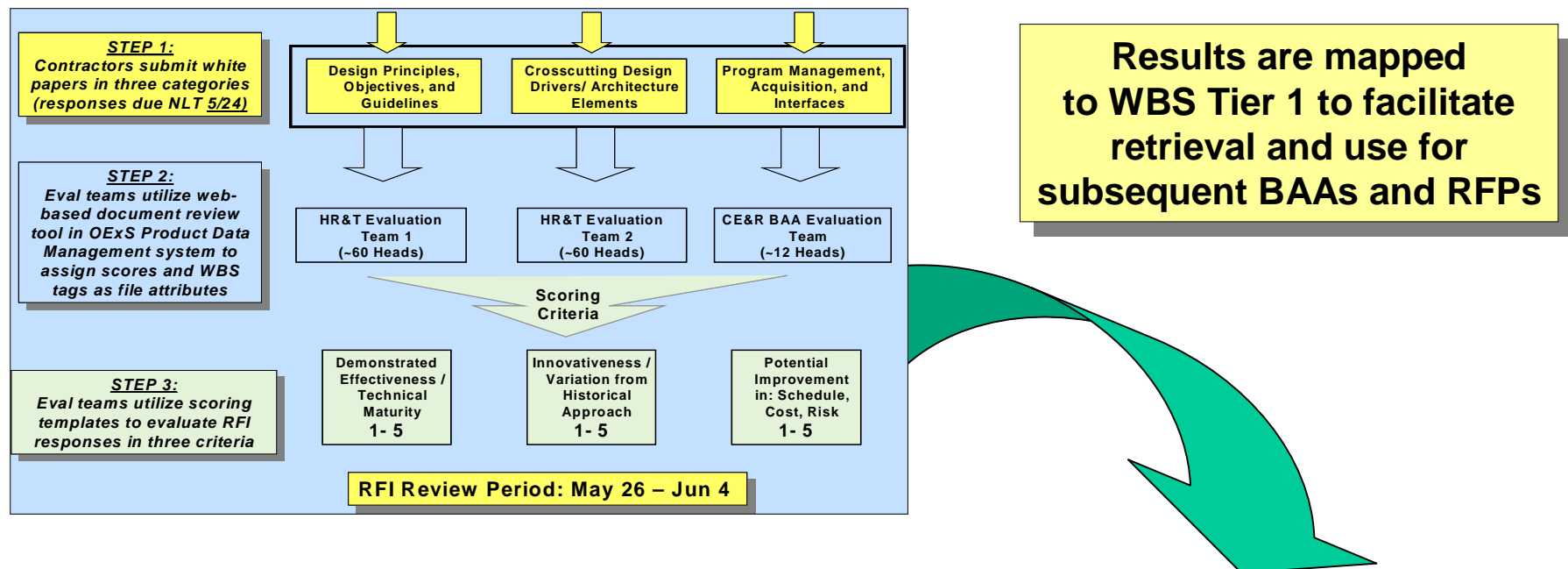


Focus Areas: Category 1

	Lessons Learned		Complexity
X	Sustainability		Effectiveness
	Affordability		Reusability
X	Reliability & Safety	X	Lifecycle Engineering Techniques



RFI Mapping to WBS

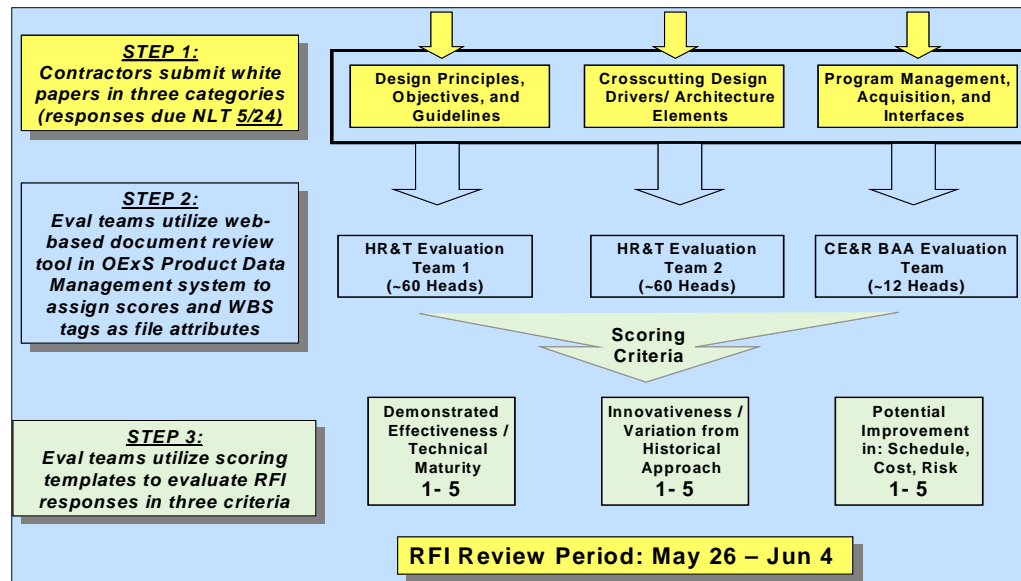


Tier 1 Elements

- 1.0 Enterprise Management
- 2.0 Systems Engineering and Integration
- 3.0 Mission Assurance
- 4.0 Crew Transportation Systems
- 5.0 Supporting In-Space Systems
- 6.0 Supporting Surface Systems
- 7.0 Space Transportation Systems
- 8.0 Launch Systems
- 9.0 Systems of Systems Operations



RFI Mapping to Technologies



RFI responses are tagged for relevance to certain technology types to facilitate retrieval and use for subsequent BAAs and RFPs

	Technology Type
	Space Resources and In-Space Manufacturing
	Space Utilities and Power
	Nuclear Space Systems
	Habitation, EVA and Bioastronautics
	Robotics, Telepresence, and Autonomy
	Space Assembly, Maintenance and Servicing
	Lunar and Planetary Surface Systems
	Space Transportation
	Information and Communications
	In-Space Instruments and Sensors



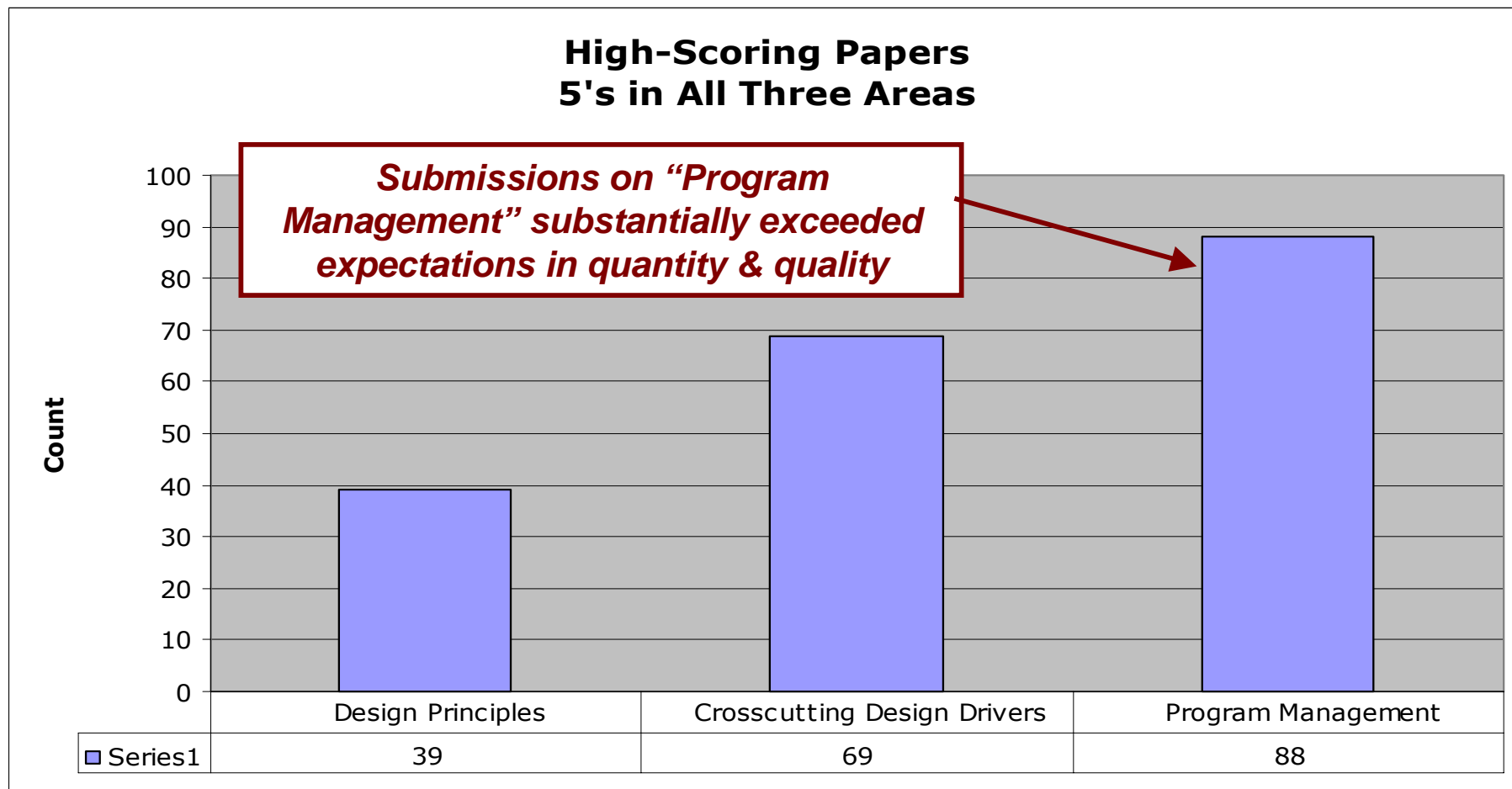
Summary of RFI Results



- **Total of 1002 Papers Received**
- **Comprehensive Trade Studies or Architectural Concepts**
- **Articulations of Difficult Lessons Learned in Prior NASA Programs**
- **Engineering Data Management Process and IT a Major Focus**
 - **Collaboration Tools**
 - **Modeling and Simulation Tools**
- **Recurring Theme: Demonstrate Technology X Early**
 - **Examples Included EVA Suits, Autonomous Robotics, Vehicle Health Management, Simulation, Software Tools, Etc.**

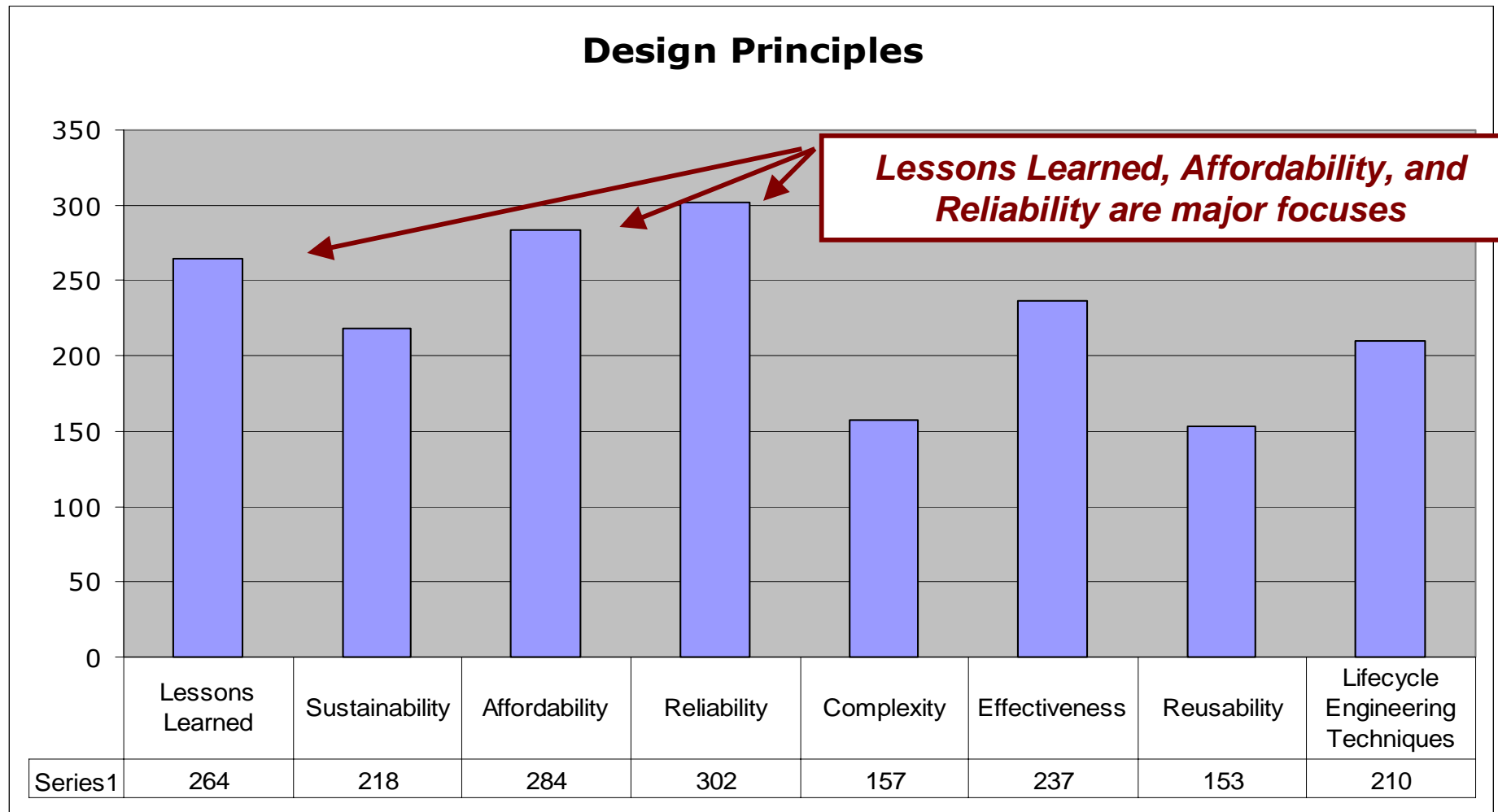


RFI Distribution of High Scoring Papers



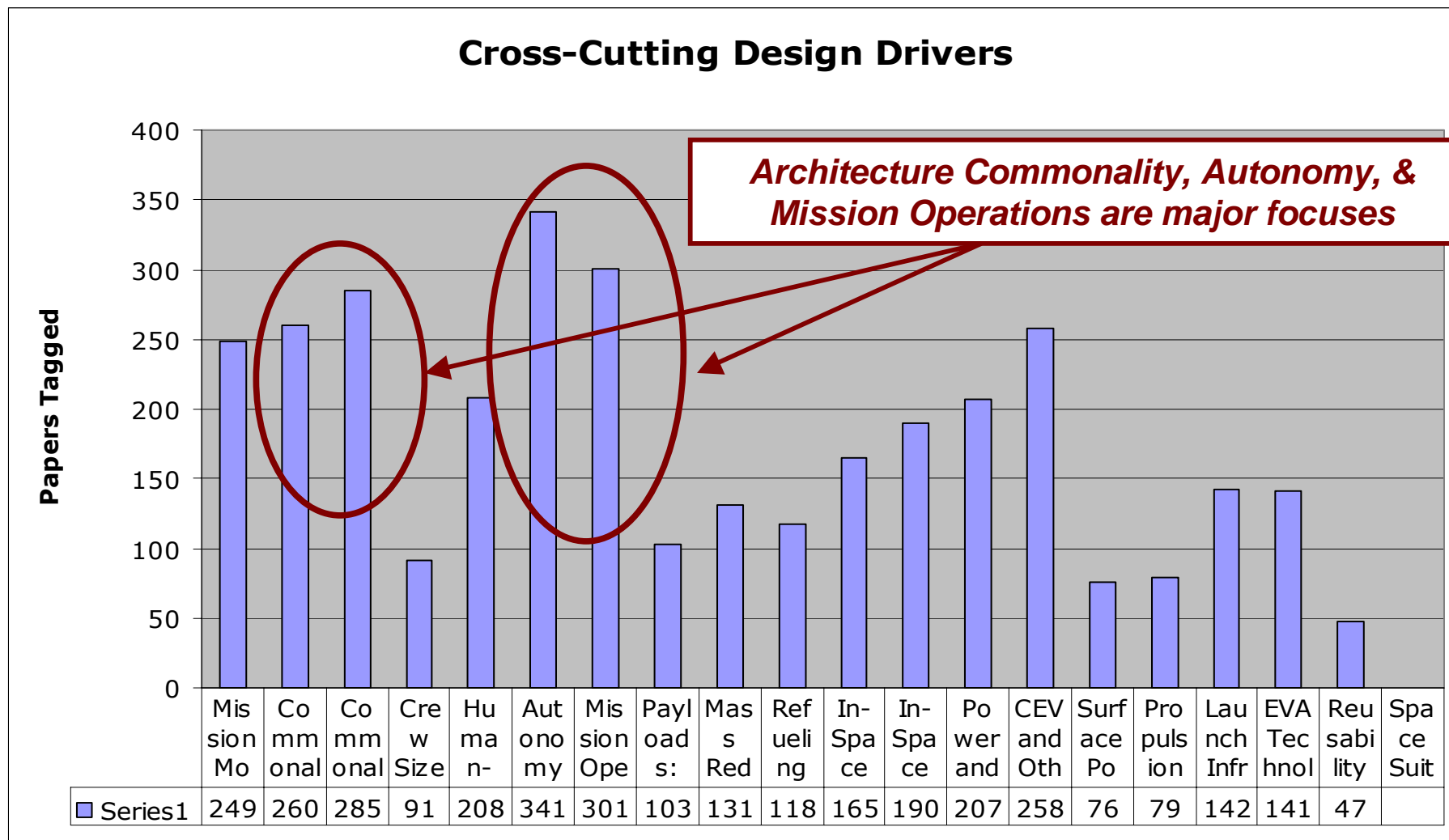


RFI Design Principles Distribution



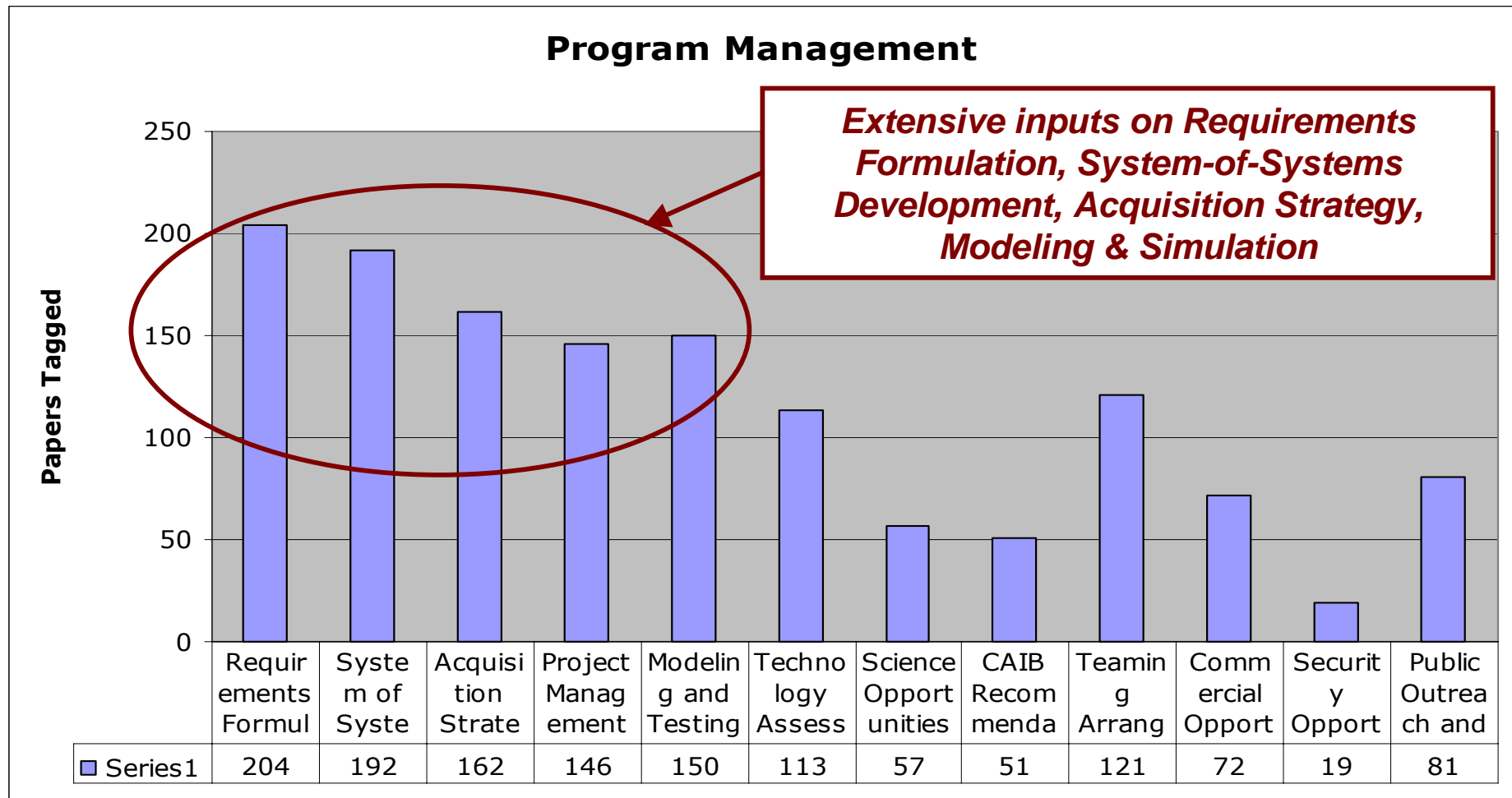


RFI Cross-Cutting Design Drivers Distribution



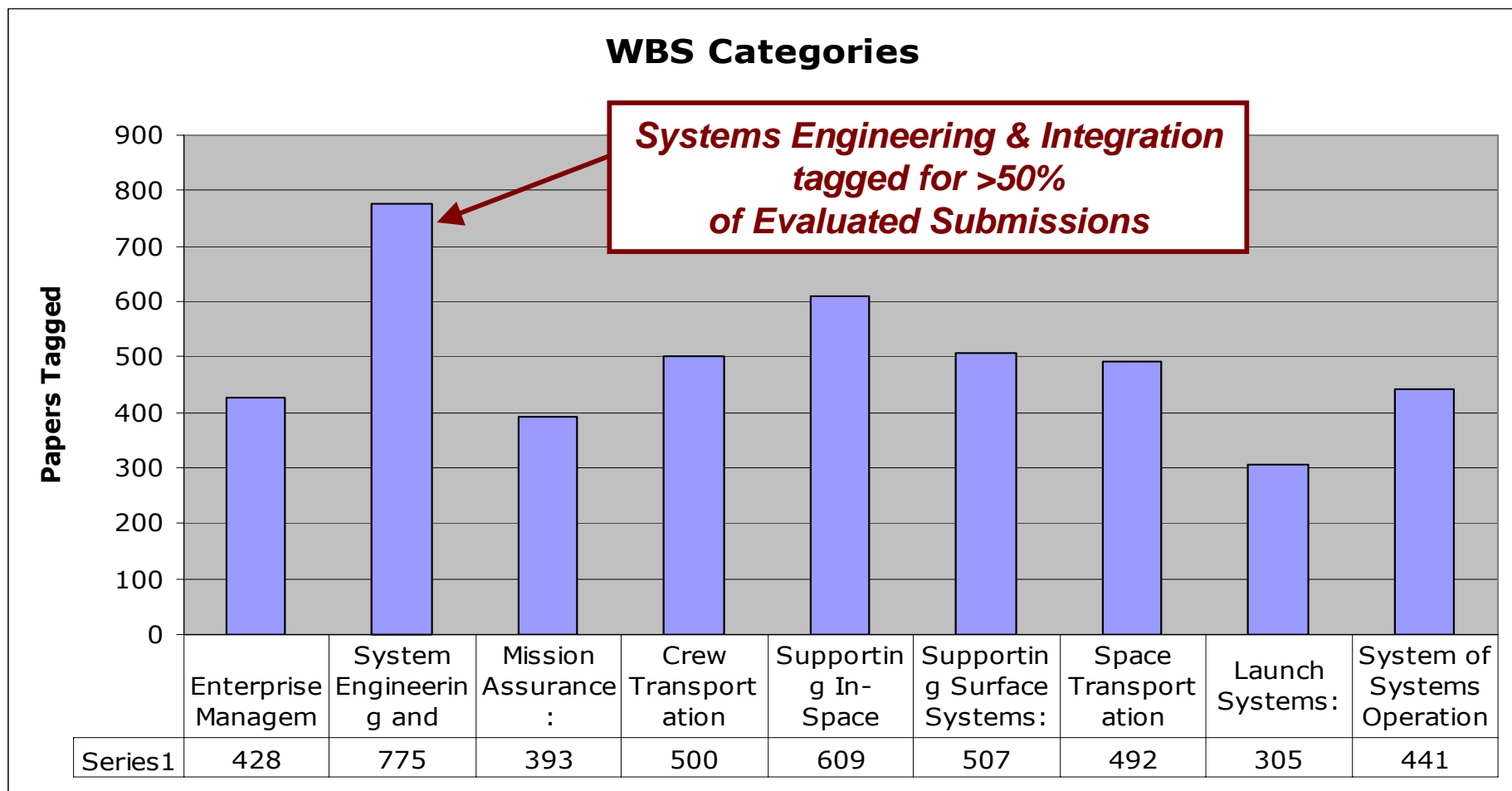


RFI Program Management Distribution



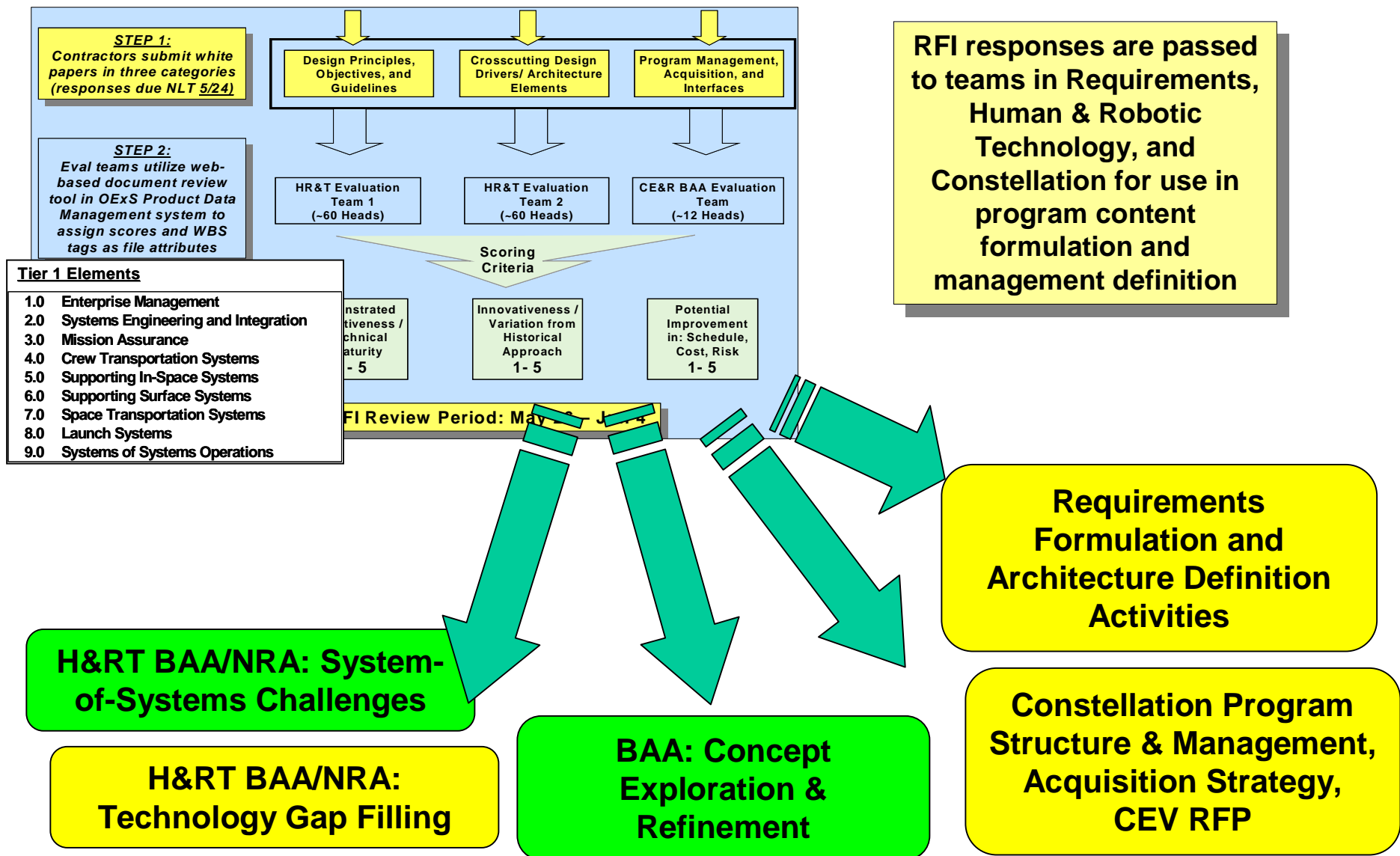


RFI WBS Distribution





RFI Next Steps





Summary of Inputs & Questions on CE&R BAA



WBS

- Clarification on Data Dictionary
- Clarification of Scope
(Constellation, All of OExS)

System Integration Contract

- Scope
- Relationship to CEV Contractor
- Timing of Award

Acquisition Strategy

- Relationship of Various BAA's
- Teaming
- International Participation
- Commercial Launch Solutions

BAA Clarification

- Offerors: Primes Only or Others
- Page Counts
- Contract Types
- Available Funding
- Clarification on Deliverables

Scope of BAA

- Relative Importance of CEV, Lunar, or Mars
- Relationship of Level 0 Requirements
- Approach to Government/Industry Teaming



Relative Importance of CEV, Moon, and Mars



- **Lunar Architecture is Critical**
 - To Understand CEV, First Define Concept for Lunar Exploration
 - For CE&R BAA, Must Also Show Extensibility to Mars
- **Updated BAA Now has Two Concept Areas**
 - **Concept Area 1: Preliminary Concepts for Human Lunar Exploration**
 - Recommendations for Scientific, Economic, and Security Objectives
 - Develop a Technical Solution that Meets the Above Objectives
 - Identify and Conduct System Level Trades Between Cost and Performance
 - Identify Components that are Common or Extensible to Mars Exploration
 - **Complete Initial Allocation of Functionality to a CEV**
 - **Concept Area 2: Crew Exploration Vehicle Concepts**
 - Complete Initial Allocation of Functionality to a CEV (*moved to Area 1*)
 - Provide Concept for CEV to Include Mold Line and Subsystems
 - **Identify CEV design drivers to include launch considerations**
 - Draft Development Plan supporting Objective of Human Orbital Flight by 2014
 - Identify the Objectives of a Demonstration Flight in 2008
- **Offerors Now Have Two Options; Permits Greater Participation**
 - Propose to Area 1 Alone
 - Propose to Both Area 1 & 2



Relationship of Level 0 Requirements



- **Level 0 Exploration Requirements**
 - **NASA shall implement a safe, sustained, and affordable robotic and human program to explore....**
 - ...develop the innovative technologies, knowledge, capability and infrastructure...
 - ...conduct lunar expeditions to further science...develop and test new exploration approaches, technologies and systems...
 - **NASA shall acquire and exploration transportation system to support delivery of crew and cargo from...Earth...to destinations...and return**
 - **NASA shall pursue commercial opportunities for providing transportation and other services supporting the international space station and exploration missions beyond low earth orbit**
- **Level I Exploration Objectives**
 - **NASA shall develop and demonstrate power generation, propulsion, life support, and other key capabilities required to support...human and robotic exploration of Mars and other destinations**
 - ...first extended human expedition to the lunar surface as early as 2015...
 - **NASA shall separate crew from cargo...**
 - **NASA shall conduct initial test flight for the CEV before the end of the decade...to support exploration missions no later than 2014**

Note: Support for International Space Station is not a baseline requirement for purposes of this BAA

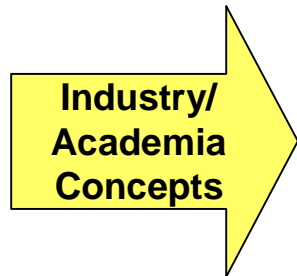
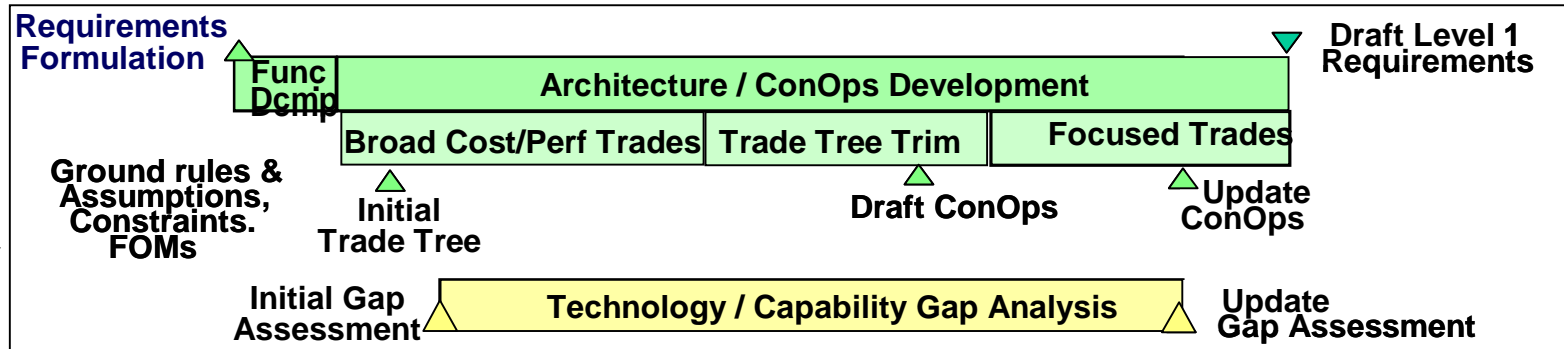
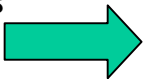


Approach to Government / Industry Teaming



Government Requirements Formulation

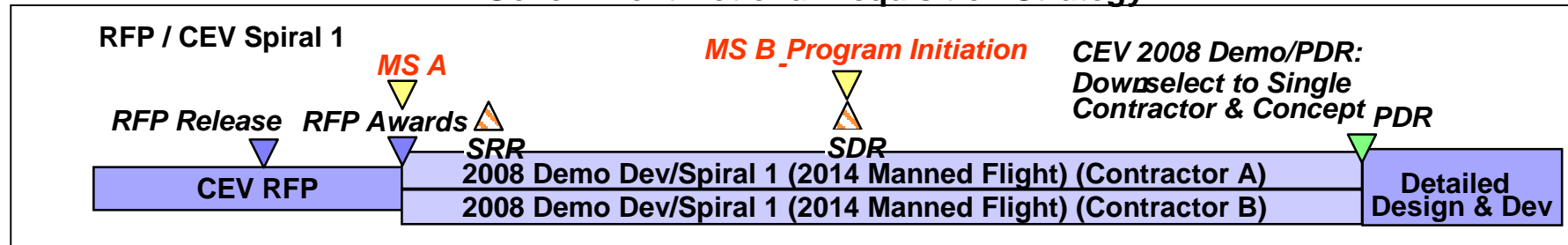
- Baseline Req'ts
- Nations Vision
 - NASA Level 0
 - Center Inputs
 - Lessons Learned



2 people, 2 days a week for the period of performance to compare and reconcile Government's and Industry's Requirements & Acquisition Strategy



Government Notional Acquisition Strategy





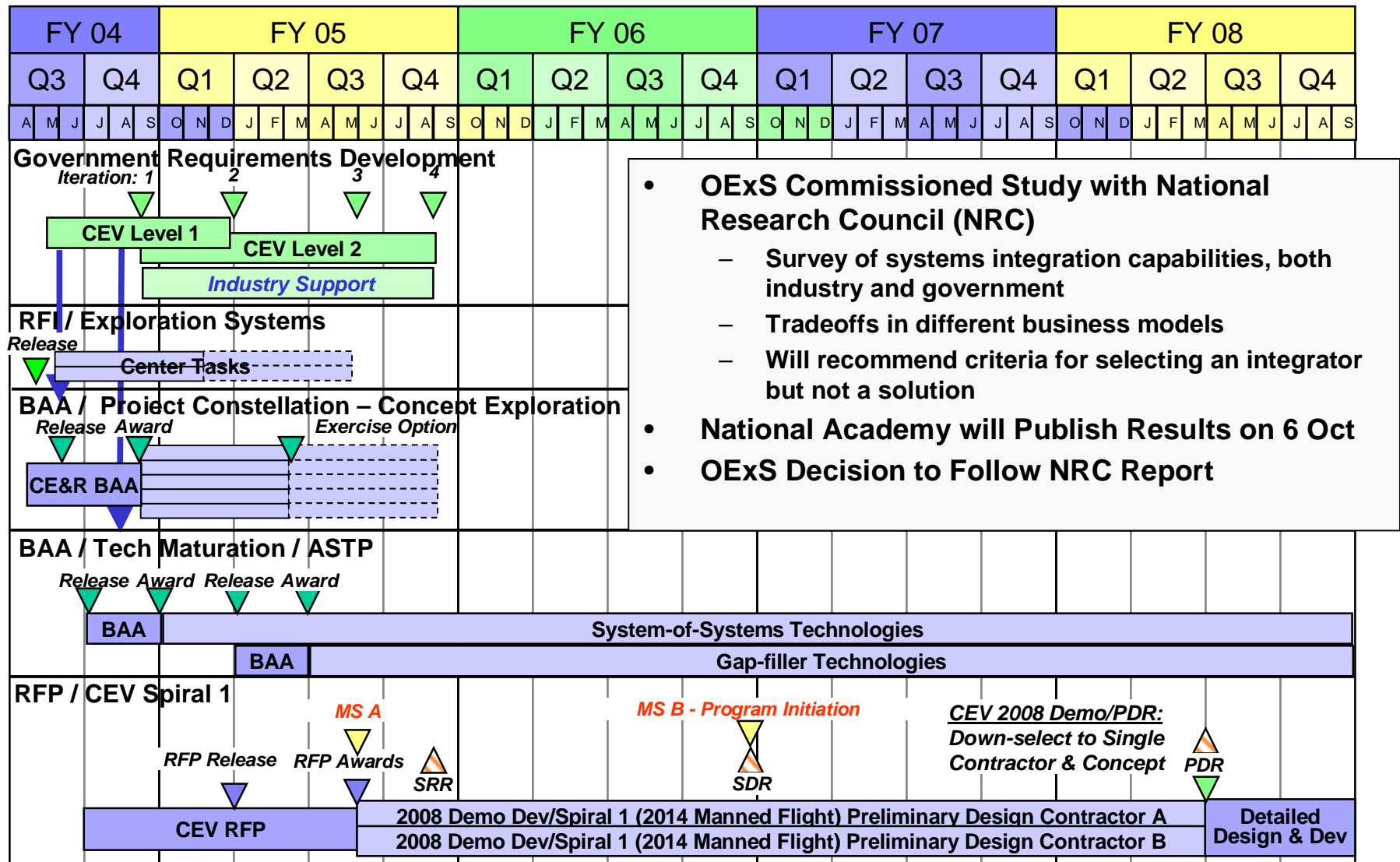
Desired Fidelity in Cost Analysis



- **Cost Estimating Assumptions**
 - Constant Fiscal Year 2005 Dollars
 - One Lunar Mission Per Year
- **Identify**
 - Major Cost Drivers
 - GFE
- **For Lunar Concept, Identify**
 - Cost Estimates at the System Level (e.g, CEV, launch system, etc)
 - Cost Estimate of Facilities and Processes
- **For CEV Concept, Also Identify**
 - Cost Estimates at the Sub-system Level (e.g., Power, Thermal Protection, etc.)
 - All Prime Contractor Costs From Development Through First Flight of the CEV
 - Flight Hardware Development and Production
 - Ground Processing and Flight Operations Facilities
 - Ground Support Equipment
 - Software
 - Etc.



Near-Term Acquisition Strategy



See Hand-Out: 6



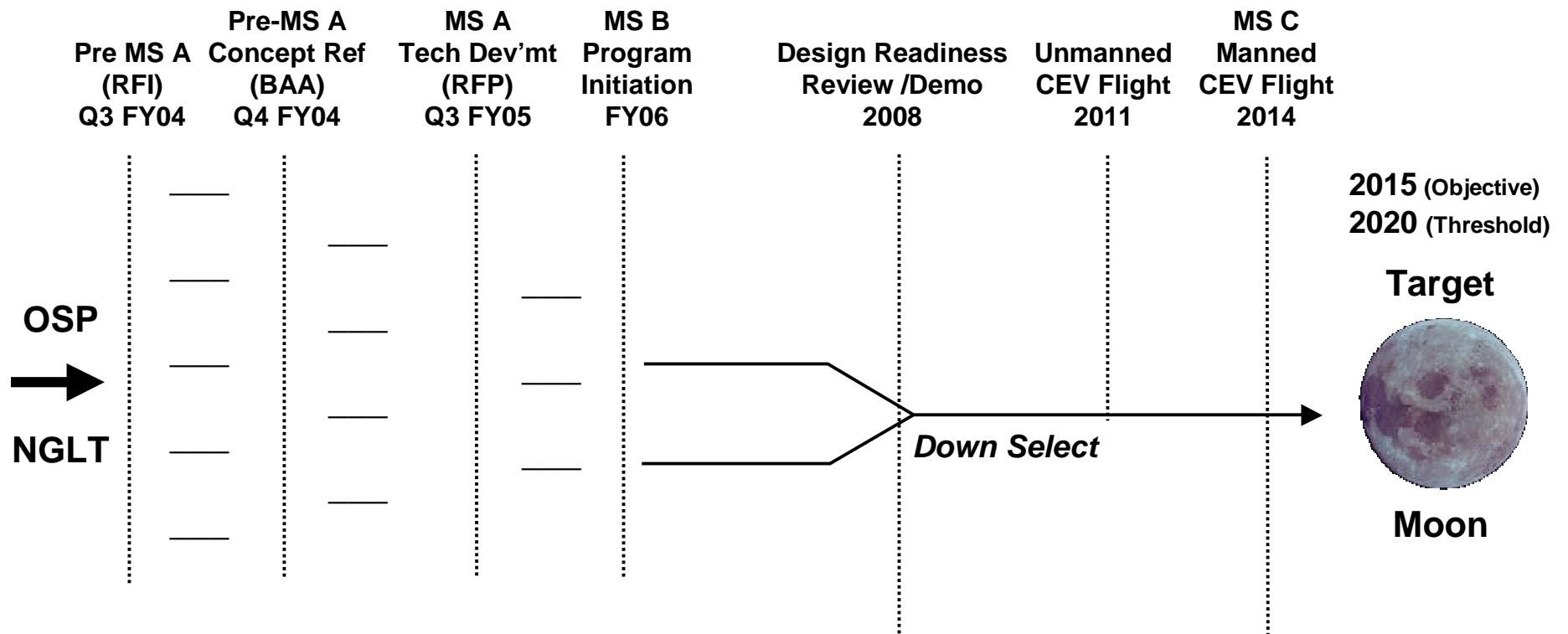
International Participation



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- **Reviewing Policy for Foreign Cooperation**
- **For Purposes of BAA, Existing NASA Policy Applies**
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Commercial Launch Solutions



COMMERCIAL EARTH-TO-ORBIT?

- Offerors Can Propose Commercial Launch as Part of BAA
- In Addition, OExS Has Commercial Launch Study Underway



Work Breakdown Structure (WBS)

1.0 Enterprise Management

2.0 System Engineering & Integration

2.1 Management and Administration

2.2 Enterprise Integration

2.3 Campaign and Mission Definition

2.4 Configuration Management

2.5 Risk Management

2.6 Simulation Based Acquisition

3.0 Safety & Mission Assurance

3.1 Management and Administration

3.2 S&MA Integration

3.3 System Safety

3.4 Safety, Health and Environmental Assurance

3.5 Reliability and Maintainability

3.6 Quality Engineering and Assurance

3.7 Operations Safety and Mission Assurance

3.8 Nuclear Safety

4.0 Constellation (Systems of Systems)

4.1 System Management

4.2 System Engineering

4.3 Safety & Mission Assur.

4.4 TECHMAT Integration

4.5 Development Integration

4.6 Integrated Operations

4.7 Crew Transport

4.8 Cargo Transport Systems

4.9 Surface Systems

4.10 In-Space Systems

4.11 Ground Systems

4.12 Robotic Precursors

- Latest Updated Posted on the OExS Website with Final CE&R BAA
- Currently Encompasses the Constellation System-of-Systems
- Will Evolve to Include Prometheus, HR&T, and Other Developments



Updated Scope of CE&R BAA



OFFEROR'S PROPOSAL

Part I: Technical Concept

- Recommended Mission Requirements
- "System-of-System" Solutions
- Risks
- CEV Functionality
- CEV Design Drivers (Area 2 Only)

Part II: Technical/Management Approach

- Technical Approach to Analysis
- CEV and Launch Development Plans (Area 2 Only)
- Key Personnel
- Past Performance
- SOW
- Small Business

Part III: Cost

- Direct
- Indirect
- Etc.



Describe the Concept



Explain How it Will Be Validated



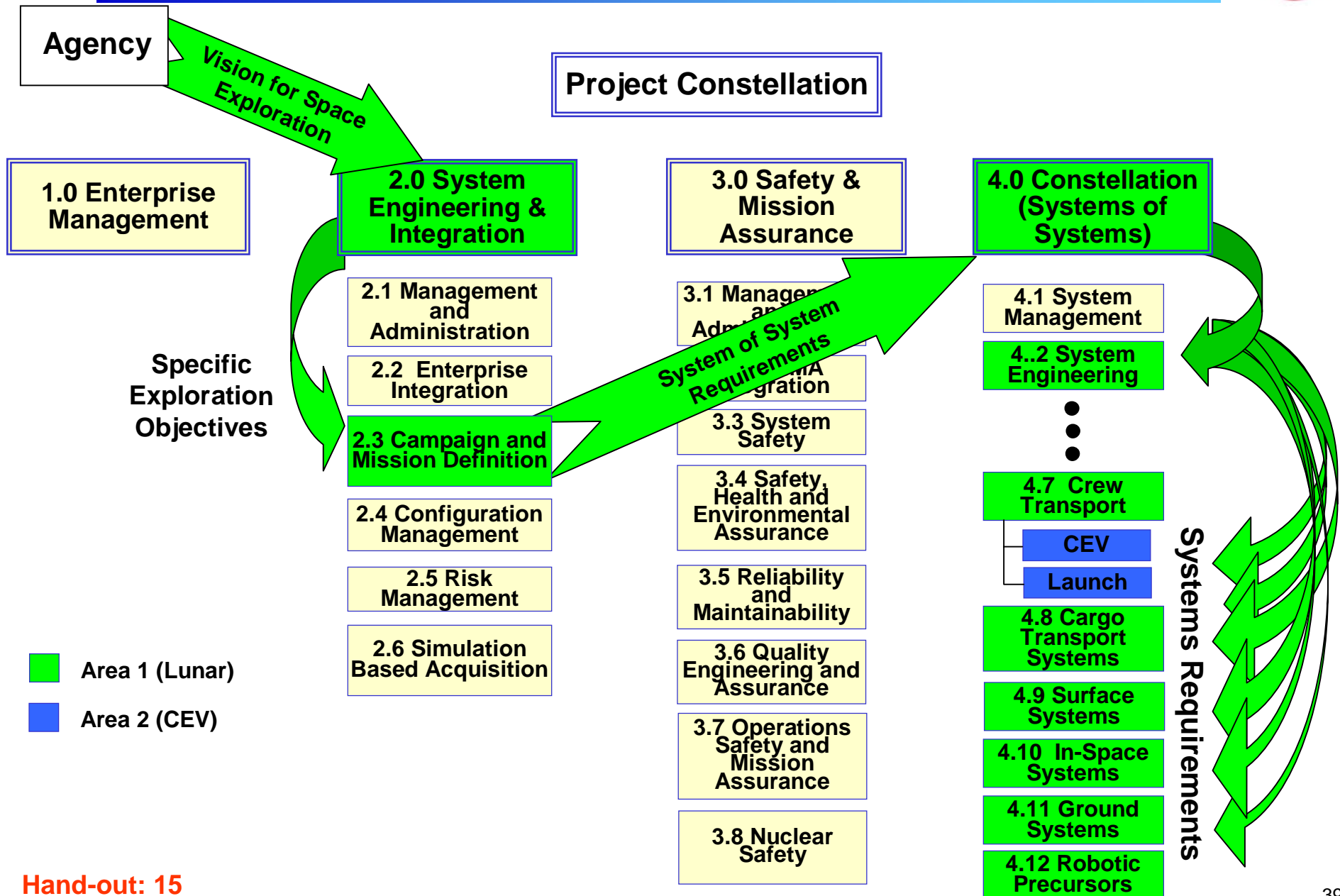
Breakout How the Money is Spent

 Area 1 (Lunar)

 Area 2 (CEV)



Updated Scope of CE&R BAA





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Contracting Information



- **Vehicle: BAA**
- **Award Type:**
 - FFP for commercial firms
 - CPFF or CR (no fee) for educational and nonprofit organizations only
- **General Proposal Outline**
 - Summary Chart
 - Technical Concept
 - Technical Approach
 - Cost
- **Period of Performance**
 - Six Month Base
 - One Six Month Option



Contracting Information (Con't)



- **Procurement Office:** Office of Exploration Systems
- **Contracting Specialist:** James Bailey
- **Technical Lead:** Captain Mike Hecker
- **GFE: None anticipated**
- **Contract Value**
 - If proposing on both concept areas the anticipated funding shall not exceed \$3 million for the base period and up to \$3 million for subsequent option period \$6M per contract (\$3M base/\$3M option)
 - If proposing on concept area 1 only, the anticipated funding shall not exceed \$1 million for the base and up to \$1 million for the subsequent option.
- **Proposal Submittal:**
 - All submittals will be done through the web
 - Hardcopies will NOT be accepted
- **Late Proposals:**
 - Proposals received by the Government after the latest date and time for receipt will not be accepted



Data Rights



- **All data produced and delivered under the contract will be “unlimited rights” data under FAR 52.227-14.**
- **Advanced agreement in contract to protect the competitive nature of contractor’s design solutions relating to CEV (concept area 2 only) while retaining the right to use all unlimited rights data for defining, deriving, and/or validating CEV requirements.**
- **The Government will not incorporate the Contractor’s specific CEV design solutions into CEV requirements.**
- **Unlimited rights data under Concept Area 1 will not be protected for competition.**



BAA Organization



- I. General Information**
- II. Eligibility Information**
- III. Proposals**
- IV. Page Limitation**
- V. Submission of Late Proposals**
- VI. Evaluation Information**
- VII. Evaluation Panel**
- VIII. Award Information**



Evaluation Criteria 1

Relevance to NASA Objectives



- **Demonstrated understanding of the objectives of the Vision for Exploration based upon evaluation of recommendations for the scientific, economic, and security objectives of lunar exploration and the proposed concept for achieving them**
- **Innovativeness of approach and concept in meeting goals of safety, reliability, sustainability, affordability, and extensibility/ evolvability of proposed concept**
- **Maturity of risk assessment and mitigation planning**

Sub-factors are of Equal Importance



Evaluation Criteria 2 ***Technical Merit***



- **Suitability of proposed systems engineering, integration, requirements development/participation and analysis approach**
- **Completeness and realism of the proposed CEV development plan, including the demonstration flight (Not applicable to Concept Area 1 proposals)**
- **Degree of experience and qualifications of the key personnel and project manager for the proposed work**
- **Suitability, relevant experience, and past performance of the offeror's team**

Sub-factors are in Descending Order of Importance



Evaluation Criteria 2 Technical Merit (Con't)



- **Completeness and suitability of the proposed SOW for incorporation into contract**
- **The socio-economic merits of each proposal will be evaluated based on the extent of the Offeror's commitment to providing meaningful subcontracting opportunities in terms of proposed subcontracting plans for small businesses, HUBZone small businesses, small disadvantaged businesses, woman-owned small businesses, veteran-owned small businesses, service disabled veteran small businesses, historically black colleges and universities, and minority institutions.**

Sub-factors are in Descending Order of Importance



Evaluation Criteria 3 **Cost**



- **The realism and reasonableness of the proposed costs and associated elements**
- **Extent to which the Offeror complied with the specified dollar limits in the BAA**

Sub-factors are of Equal Importance



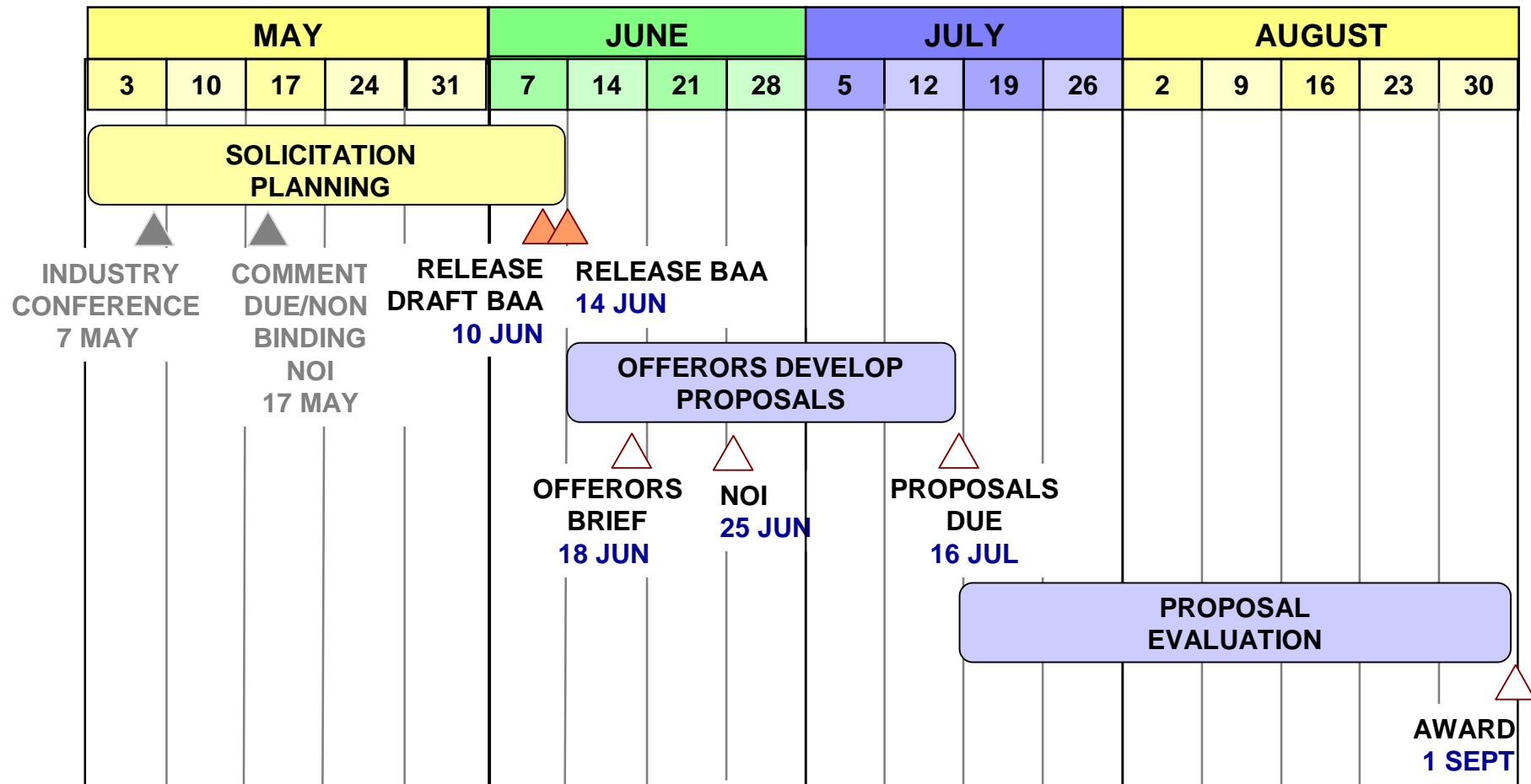
Evaluation Process



- **Evaluation Process – Three Step Process**
 - **Step One: Initial screening based solely upon the Relevance to NASA Objectives**
 - **Step Two: Evaluation of Technical Merit and Costs**
 - **Step Three: Negotiation of Final Contract**
- **Final selection decisions will be made considering cost, available funding, and the best overall concept portfolio to meet the program objectives with respect to providing for a broad range of innovative concepts and participation**



Schedule



- Pursuing an Aggressive Schedule to Accelerate Industry Participation
- Seeking Contract Awards Not-Later-Than 1 September 2004



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Mark Stiles, Contracting Officer
- 1200 End of Industry Day



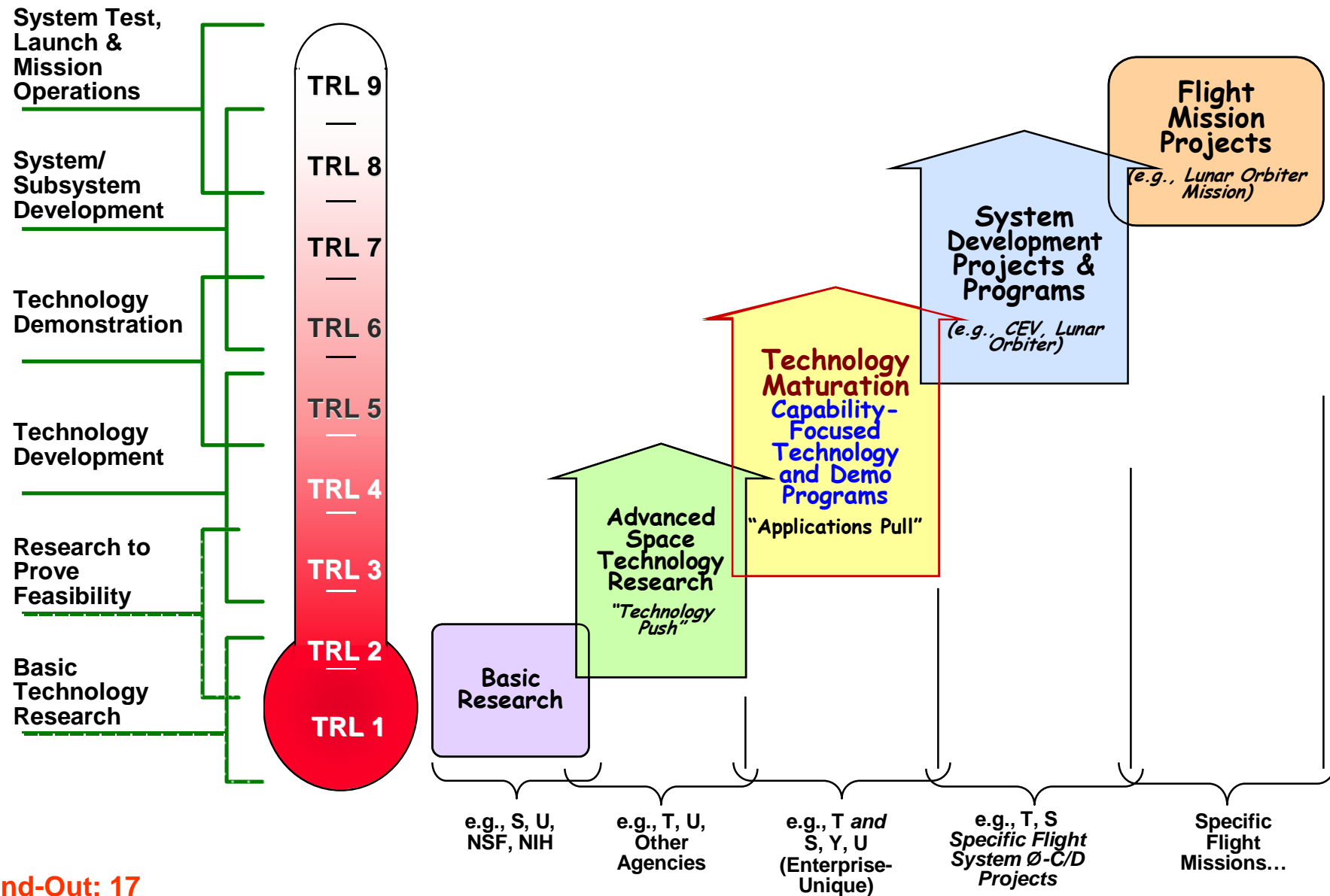
H&RT Overview



- **The Human & Robotic Technology (H&RT) Theme comprises five major programs in NASA's budget**
 - **Advanced Space Technology (AST)**
 - **Technology Maturation (TM)**
 - **Innovative Technology Transfer Partnerships**
 - **Project Prometheus**
 - **Centennial Challenges**
- **Only AST and TM will be addressed in the July 2004 H&RT BAA**

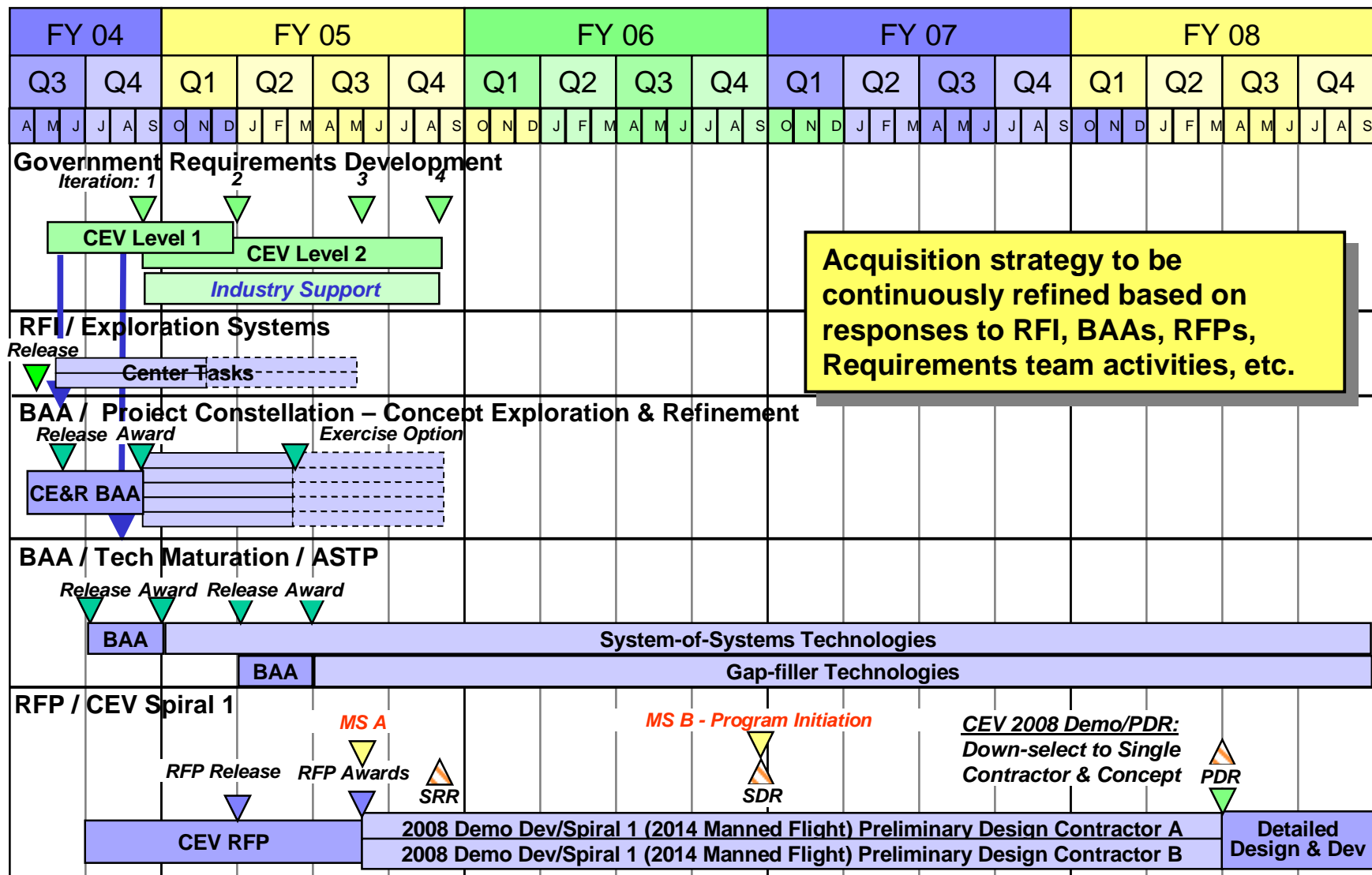


H&RT Technology Maturation Model





Near-Term Acquisition Strategy



See Hand-Out: 6



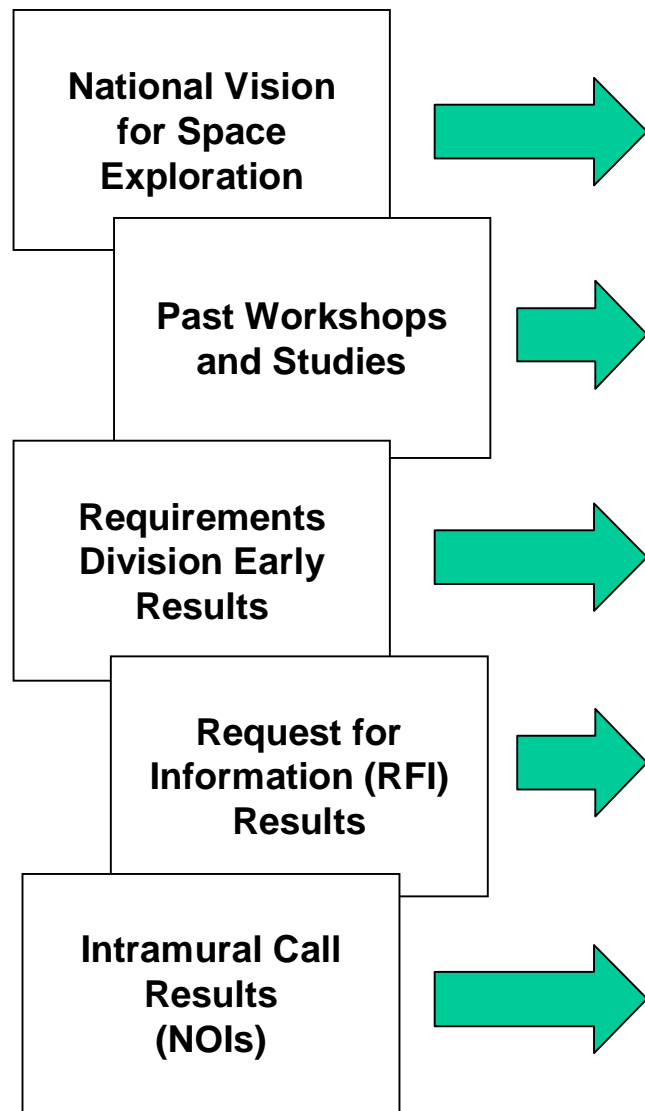
H&RT AST and TM Program



- **Technologies that enable ‘system-of-systems’ level innovations for Spiral 2 and beyond (e.g., the Human Lunar Return and beyond)**
- **Technologies needed to fill critical subsystem-level ‘Capability Gaps’ for Spiral 1**
- **High-risk/long-lead technologies that enable new subsystem-level ‘capability opportunities’ for Spiral 2 and beyond**
- **Technologies of broad common application and value**



H&RT Strategic Technical Challenges



- **Overarching**
 - Affordability
 - Reliability
 - Effectiveness
 - Flexibility
- **Strategic**
 - Margins and Redundancy
 - Autonomy
 - Human Presence in Deep Space (as safe as reasonably achievable)
 - Affordable Pre-positioning of Logistics
 - Energy-Rich Systems and Missions
 - Reusability
 - Modularity
 - In-Space Assembly
 - Re-configurability
 - Robotic Networks
 - Space Resources Utilization
 - Data-rich Virtual Presence
 - Access to Surface Targets



H&RT Advanced Space Technology (1 of 2)



- **Advanced Studies, Concepts and Tools**
 - **Modeling and Tools R&D (Various TRLs)**
 - Challenge (Example): Optimizing investment portfolios in novel concepts and technologies (to be embedded in long-lived future systems-of-systems) require multi-faceted, strategic analysis approaches
 - Technology Area (Example): New models, databases and analytical tools for use in future exploration R&D and development programs
 - **Advanced Concepts and Studies (TRL 2 to 3)**
 - Challenge (Example): A dramatic reduction in space transportation costs will be needed to enable affordable, long-term human interplanetary missions (beyond the Moon)
 - Technology Area (Example): high-risk / novel power and propulsion concepts that drastically reduce cost per kg delivered to Mars



H&RT Advanced Space Technology (1 of 2)



- **Advanced Materials and Structural Concepts R&D (TRL 3 to 5)**
 - **Challenge** (Example): The mass of future ambitious Exploration systems will drive in-space propulsion and launch requirements, *however* trimming masses using existing materials reduces margins and reliability
 - **Technology Area** (Example): novel materials and applications that will reduce the mass *and* increase the strength of diverse space exploration systems tankage, habitats, power systems, etc.
- **Computing, Communications, Electronics & Imaging R&D (TRL 3 to 5)**
 - **Challenge** (Example): Applications of novel approaches using robotics, autonomous systems, IVHM, etc., will be limited because available on-board computing and data storage can lag a decade or more behind SOA
 - **Technology Area** (Example): More current generations of robust, fault-tolerant and general purpose flight computers that can enable rapid deployment of novel approaches for successive Spirals



H&RT Advanced Space Technology (2 of 2)



- **Software, Intelligent Systems and Modeling R&D (TRL 3 to 5)**
 - Challenge (Example): Ground operations costs of future Exploration campaigns lasting years to decades will limit funds available to develop systems for subsequent spirals
 - Technology Area (Example): New generations of robust, fault-tolerant software for intelligent, cooperative space systems that operate largely autonomously from ground control
- **Power, Propulsion and Chemical Systems (TRL 3 to 5)**
 - Challenge (Example): Available storage systems provide relatively low power with substantial penalties in terms of mass, and wasted energy
 - Technology Area (Example): Innovative new batteries and fuel cells could increase available power and total energy for a wide range of systems, including rovers, habitats, space suits and others



H&RT Technology Maturation (1 of 2)



- **High Energy Space Systems (TRL 4 to 6)**
 - **Challenge** (Example): The use of expendable space systems imposes a heavy ‘per mission’ cost penalty (due to hardware) on exploration missions—the larger the systems and more ambitious the mission, the greater the penalty
 - **Technology Area** (Example): The demonstration of high energy space systems—including advanced power and propulsion—could enable the pre-positioning of fuel and make possible reusable space systems for the human & robotic Moon missions with lower per mission costs
- **Advanced Space Platforms and Systems (TRL 4 to 6)**
 - **Challenge** (Example): Our ability to deploy future exploration systems-of-systems in remote venues (over years to decades) will be sharply limited if each system employs costly, unique-purpose subsystems and interfaces
 - **Technology Area** (Example): The validation of intelligent, modular and re-configurable subsystems and systems would enable flexibility and extensibility in space transportation & infrastructures, and surface systems



H&RT Technology Maturation (1 of 2)



- **Advanced Space Operations (TRL 4 to 6)**
 - **Challenge** (Example): Current technologies and concepts-of-operations would result in high life cycle costs for early human Lunar operations—drastically curtailing the use of the Moon as a test bed for Mars and beyond
 - **Technology Area** (Example): Validated capability to deploy low-risk, advanced robotic concepts capable of more autonomous operations—and operations in partnership with astronauts—can drive down costs from the earliest missions
- **Lunar and Planetary Surface Operations(TRL 4 to 6)**
 - **Challenge** (Example): Long-term ambitious activities on the Moon, Mars or elsewhere will be increasingly limited by the extended ‘logistics tail’ for deep-space and surface operations
 - **Technology Area** (Example): Demonstrated capability to utilize *in situ* resources to off-set transportation requirements for propellants, life support consumables, systems spares, etc.



H&RT Technology Maturation (2 of 2)



- **In-Space Technology Flight Experiments (TFE)**
 - **Challenge** (Example): Timely application of new concepts and technologies may depend on early flight validation however flight projects can 'eat' the 'seed corn' for longer term, higher-payoff R&D
 - **Technology Area** (Example): A focused effort to identify, design, build (where appropriate) and fly novel concepts and technology will accelerate the pace of innovation and application
 - **Areas include**
 - TFE preliminary design studies
 - TFE accommodations and carriers studies
 - TFE implementation projects



H&RT AST and TM Program



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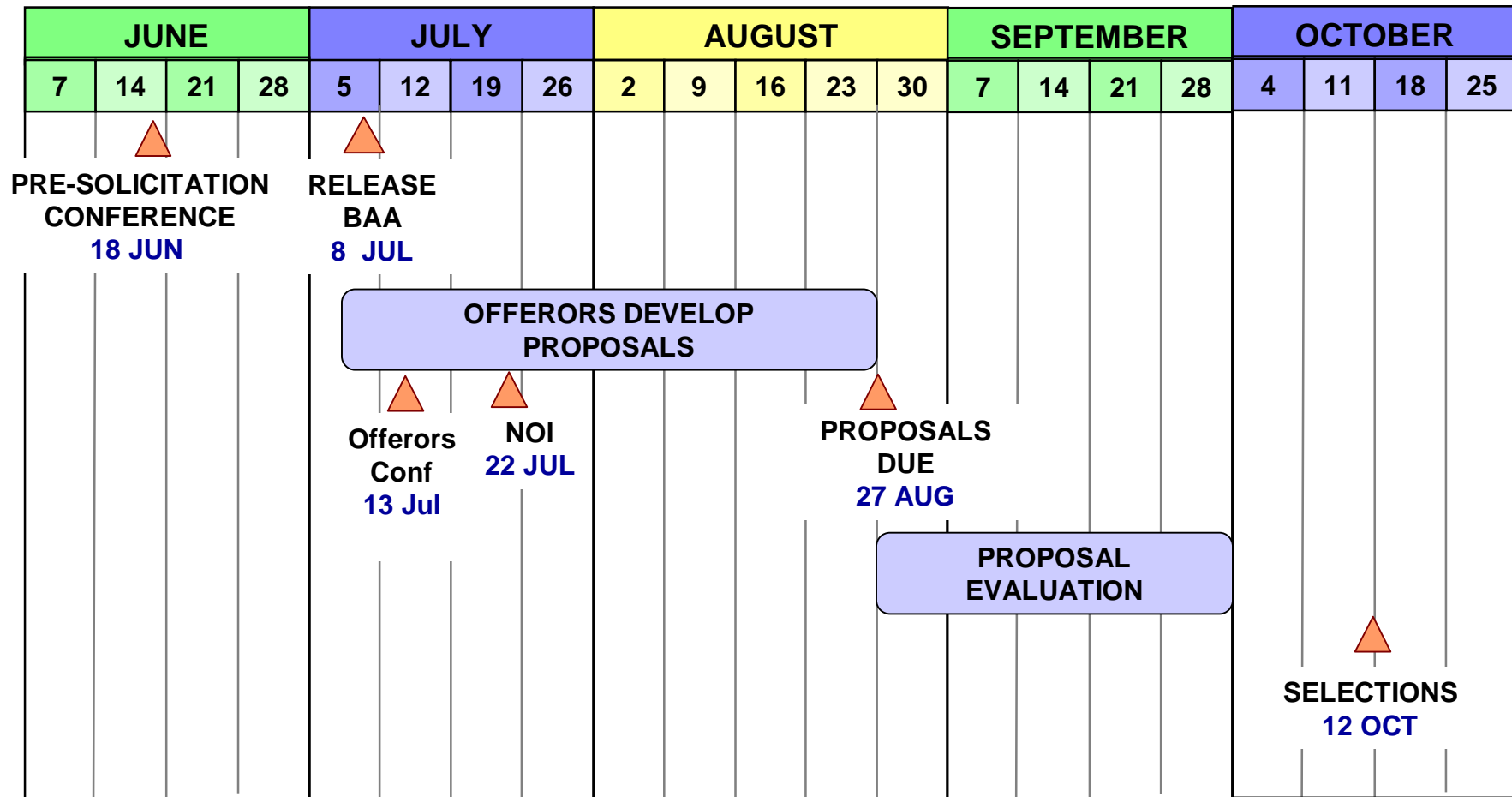
Agenda (Part 2 – Human & Robotic Technologies BAA)



- 1045-1050 Introduction of H & RT Discussions
Jim Nehman
Director, Development Programs
- 1050-1115 Human & Robotic Technologies BAA & Acquisition Strategy
John Mankins
Deputy Director, Human and Robotic Technologies
- 1115-1130 **H & RT BAA – Contract Process**
Mark Stiles
Contracting Officer
- 1130-1200 Q & A Session – H & RT BAA – Jim Nehman Facilitator
Captain Michael Hecker, Deputy, Development Programs
John Mankins, Deputy Director, Human and Robotic Technologies
Dr. Terry Allard, Program Director, Advanced Space Technology
Bret Drake, Requirements Formulation Lead
Mark Stiles, Contracting Officer
- 1200 End of Industry Day



Schedule for H&RT BAA



- Pursuing accelerated schedule for industry participation
- Proposal selections by 12 October 2004



Notice of Intent (NOI)



- **Required to Propose**
- **Content**
 - **Project Title**
 - **Lead Individual**
 - **Lead Organization**
 - **H&RT Program (i.e., AST or TM)**
 - **Primary Element Program (e.g. Advanced Materials and Structures)**
 - **Secondary Element Program (e.g. Advanced Space Platforms and Systems)**
 - **Participating NASA Centers and Other Collaborating Institutions, if applicable**
 - **Non-Binding**
 - **Preliminary Estimates (+/- 10%) of the total project cost**
 - **Brief Summary which will Serve as the Proposal Abstract**
 - **750 words or less**



Proposal Outline



- **Cover Sheet**
- **Transmittal letter**
- **Title Page with Notice on Use and Disclosure of Proposal Information**
- **Statement of Justification (e.g. value of research)**
- **Project Description (includes both phase 1 & 2 R&D plan)**
- **Management Approach**
- **Key Personnel**
- **Facilities and Equipment**
- **Proposed Cost**



Contracting Information



- **Procurement Office:** Office of Exploration Systems
- **Contracting Officer:** Michael R. Sosebee
- **Technical Lead:** John C. Mankins
- **GFE:**
 - None anticipated, however partnerships with NASA Centers encouraged
- **Proposal Submittal**
 - All submittals via the web
 - Hardcopies NOT accepted
- **Period of Performance**
 - Phase 1: 12 Month Base Period
 - Phase 2: 12 Month Option Plus 24 Month Option if Applicable
- **Award Type**
 - Contracts
 - Cooperative Agreements
- **Cost Sharing Encouraged**



Contracting Value



AST Element Program

- **ASCT Tools and Databases**
 - Phase 1 - 12 mo., Phase 2 – 36 mo.
- **ASCT Concepts and Studies**
 - Phase 1 - 12 mo., Phase 2 – 12 mo.
- **Other AST Element Programs**
 - Phase 1 - 12 mo., Phase 2 – 36 mo.

Anticipated Values (per project)

\$4M - \$8M

\$2M - \$4M

\$5M - \$15M

TM Element Program

- **TFE Definition & Design Studies**
 - Phase 1 - 12 mo., Phase 2 – 12 mo.
- **TFE Experiment Development Projects**
 - Phase 1 - 12 mo., Phase 2 – 36 mo.
- **TFE Carrier Definition Studies**
 - Phase 1 - 12 mo., Phase 2 – 12 mo.
- **Other TM Element Program**
 - Phase 1 - 12 mo., Phase 2 – 36 mo.

Anticipated Values (per project)

\$2M - \$4M

\$10M - \$20M

\$2M - \$4M

\$10M - \$40M

AST: Advanced Space Technology

TM: Technology Maturation



Evaluation Process



- **Initial Screening of Notices of Intent to Identify Candidates Eligible to Submit Full Proposals**
- **Detailed Evaluation of Full Proposals**
- **Integration Panel Review Across Areas to Ensure Balanced Portfolio (Best Value to the Government)**
- **Selections**
- **Contracts and Cooperative Agreements Negotiated and Awarded by NASA Centers**



Evaluation Criteria



- **Criteria**
 - **Relevance to NASA H&RT Goals and Objectives**
 - **Affordability**
 - **Safety/Reliability**
 - **Effectiveness**
 - **Extensibility/Evolvability/Flexibility**
 - **Development Risk/Schedule Realism**
 - **Technical Merit**
 - **Unique or innovative concepts and/or approach**
 - **Completeness and suitability of proposed SOW**
 - **Offeror's capabilities and related experience including partnerships and collaboration**
 - **Key Personnel qualifications and experience**
 - **Small Business and Small Disadvantaged Business utilization**
 - **Cost**



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Office of Exploration Systems Acquisition Portal



- **Additional Information Available at:**
<https://naccsli1.msfc.nasa.gov/ExplorationPortal>
- Updated Material Available
 - Today's Industry Day Briefing
 - Concept Exploration & Refinement Broad Agency Announcement
 - Constellation WBS
 - Human & Robotic Formulation Plan
 - President's Commission on Implementation of United States Space Exploration Policy